SMALL-SCALE FARMERS AND LAND CARE WORKERS' PERCEPTIONS OF LAND DEGRADATION AND HOW IT INFLUENCES THEIR LIVELIHOODS: AN EXPLORATIVE STUDY IN LADYBRAND

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A dissertation submitted in fulfilment of the requirements for the degree

Master in Social Work

in the Department of Social Work and Criminology at the

UNIVERSITY OF PRETORIA

FACULTY OF HUMANITIES

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DECEMBER 2021

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ABSTRACT

SMALL-SCALE FARMERS AND LAND CARE WORKERS' PERCEPTIONS OF LAND DEGRADATION AND HOW IT INFLUENCES THEIR LIVELIHOODS: AN EXPLORATIVE STUDY IN LADYBRAND

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Land degradation poses a challenge globally, which impacts land quality, biodiversity and sustainable livelihoods. It has a substantial influence on the natural resource-based livelihoods of agricultural communities whose livelihoods are dependent on the productivity of the land (Mani, Osborne & Cleaver, 2021:978). Ladybrand has been affected by financial limitations along with natural disasters, such as land degradation (Thabo Mofutsanyana District Municipality Draft Integrated Development Plan 2014:43), which negatively affects the livelihoods and well-being of the poorest households in the area, including small-scale farmers and land care workers.

The goal of the study was to explore and describe the perceptions of small-scale farmers and land care workers of land degradation in Ladybrand and how it influences their livelihoods.

The study adopted a qualitative research approach, with both exploratory and descriptive research goals. The study made use of applied research and the research design was an instrumental case study. A purposive sampling method was used to select 13 small-scale farmers (general and commonage) and 14 land care workers for the study. Data for both study population groups were collected through focus group meetings and data were analysed using thematic analysis.

The findings indicated the causes of land degradation in Ladybrand as the high volume of invasive plants, land pollution, overgrazing, veld fires and unsecure land tenure systems. The underfunded land care programme, limited access to farming and land care equipment and poor access to markets hinder small-scale farmers and land care workers from optimising sustainable land management practices.

The study concludes that land degradation influences the livelihoods of small-scale farmers and land care workers in Ladybrand. Strategies recommended to mitigate land degradation and improve land management practices include rotational grazing, increasing funding for land care workers, tenure security for small-scale farmers, increasing access to markets, and institutional support to small-scale farmers and land care workers.

Key words

Land care workers

Land degradation

Small-scale farmers

Sustainable land management

Sustainable livelihoods

ACKNOWLEDGEMENTS

I wish to express my sincere gratitude and give recognition to the following people for their unconditional support and guidance to make this study a reality:

- First and foremost, I give all thanks and glory to the Heavenly Father, my God, for providing me with all the necessary strength, wisdom and courage to persevere until the end.
- My supervisor Prof. Lombard and co-supervisor Dr Ilse Aucamp. I am grateful to you. Words are not enough for me to fully express how much I appreciate your continuous support, mentoring, patience, valuable inputs and professional guidance throughout the course of this study. Your faith and confidence in me empowered me to pursue this study to the end.
- My sincere gratitude goes to SALDi (South African Land Degradation Monitor) who awarded me with this unprecedented opportunity to pursue the study.
- I gratefully acknowledge and appreciate all the participants for their contributions to the study.
- Finally, to all my friends, colleagues and family. I am greatly indebted to you for all your amazing support, words of encouragement and patience throughout this journey.

DEDICATION

To Maki, I am truly grateful for your assistance with everything. I will always remember your humility, patience and kindness. Rest in heavenly glory Maki.

ABBREVIATIONS AND ACRONYMS

DFID	Department for International Development
ELD	Economics of Land Degradation
FAO	Food and Agriculture Organisation
IDC	The Industrial Development Corporation
MAFA	Manyatseng Farmers Association
NAPDLDD	National Action Programme to Combat Desertification, Land Degradation and Drought
NAMC	National Agricultural Marketing Council
NDP	National Development Plan
NEMA	The National Environmental Management
SDGs	Sustainable Development Goals
SLA	Sustainable Livelihoods Approach
SLM	Sustainable Land Management
SPLUMA	The Spatial Planning and Land Use Management Act
UN	United Nations
UNDP	United Nations Development Programme
UNCCD	The United Nations Convention to Combat Desertification
UNEP	United Nations Environment Programme

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CHAPTER 1

GENERAL INTRODUCTION TO THE STUDY

1.1 INTRODUCTION

The degradation of earth's natural resources is one of the critical challenges experienced on a global scale (Kertész, 2009:19). Land degradation and drought are challenges of a global dimension. Meadows and Hoffman (2002:428) highlight that a substantial proportion of the global landscape is regarded as "dryland", which means that a given percentage of land will experience relative scales of degradation. Africa in general and South Africa in particular has not been immune to these transformations of the land surface. According to National Action Programme to Combat Desertification, Land Degradation and Drought (NAPDLDD) (2017:7), globally, desertification affects approximately 70 percent of drylands, and 73 percent of Africa's agricultural lands are degraded. Nearly 91 percent of South Africa's landscape is drylands; this makes it disposed to desertification. Desertification and land degradation contribute to and aggravate economic, social and environmental problems such as food security, poverty, urbanisation (or forced migration), reduced resilience to climate change and biodiversity loss. These are among the most critical environmental challenges in South Africa. In addition, 80 percent of the land in South Africa is used for agriculture and subsistence livelihoods. Of this, 11 percent (12.76 million ha) has arable potential, of which 82 percent is under commercial agriculture, while the majority (69 percent) is used for grazing (NAPDLDD, 2017:7). The United Nations Convention to Combat Desertification (UNCCD) (2017:3) highlights that addressing land degradation and drought will involve long-term integrated strategies that concurrently focus on the improved productivity of land and the rehabilitation, conservation and sustainable management of land and water resources.

The land changes in Africa are influenced by the notion that two-thirds of the central and southern African population residing in rural areas use agriculture and natural resources as their economic and social mainstay (Nyamugama & Kakembo, 2015:398; Barbier, 2010:637). In South Africa, the degradation debate is contextualised between extensive agricultural farms and collective livestock production in rangelands (Palmer & Bennett, 2013:3). Land degradation has resulted in discrepancy between land use

and land quality (Fitzpatrick, 2002:119). This decline in the quality of land is linked with the livelihoods and wellbeing of the community as land itself holds a social and economic value that supports the livelihoods of the community and, in particular, poor communities.

Ladybrand is regarded as one of the most fertile areas in the Free State province; however, it has been affected by financial limitations along with natural disasters such as land degradation (Thabo Mofutsanyana District Municipality, 2014:43). Land holds an inherent value in the Free State province, where landscape is dominated by agriculture and from where 70 percent of South Africa's grain production comes (Department of Agriculture & Rural Development, 2018).

The livelihood of most poor people in rural areas depends on land. Gashu and Muchie (2018:2) state that land degradation has the highest effect on the livelihoods and wellbeing of the poorest households in the rural areas of developing countries. According to Nkonya, Mirzabaev and Von Braun (2016: 3), food, fibre and other natural ecosystem services for the global population are obtained from land, the degradation of which has both direct and indirect impacts on overall human wellbeing. Addressing land degradation can, therefore, provide cross-cutting contributions to achieving some of the 17 Sustainable Development Goals (SDGs) (United Nations, 2015:14). This particularly relates to Goal 2, which aims to "end hunger, achieve food security and improved nutrition and promote sustainable agriculture", which will impact on reducing poverty (Goal 1) (UN, 2015:17). Nkonya et al. (2016:3) state that despite the crucial role that land plays in human wellbeing and development, investments in sustainable land use are minimum, particularly in developing countries. Productive efforts and incentives for sustainable land management and for prevention of land and soil degradation are presently inadequate and would need to be substantially increased to eradicate poverty and enhance food security in the world (Nkonya et al., 2016:3). Land degradation results in food insecurity, poverty and out-migration for those communities whose livelihoods depend on land resources; this in turn poses a threat to the social and economic development of the community.

Ladybrand is a town that is still dominated by white farmers. According to Thabo Mofutsanyana District Municipality (2014:43), the government and commercial farmers are making an effort to build capacity with previously disadvantaged people,

including the small-scale farmers. However, the funds to buy land for emerging farmers are often not sufficient to also fund equipment and tools that can be optimised for sustainable land management and mitigate the degradation of land as natural capital. Thus, although support is available, emerging farmers experience challenges in accessing information and support from the Department of Agriculture, which hampers their development and ultimately the quality of the land as well as their sustainable livelihoods (Thabo Mofutsanyana District Municipality, 2014:43).

Sustainable land use and prevention of land and soil degradation are therefore central to the wellbeing and socio-economic development of the people of Ladybrand. Therefore, the study was targeted at small-scale farmers and land care workers to explore their perceptions of land degradation and how it influences their livelihood.

The key concepts relevant to the study are discussed next.

- **Land degradation**

For purposes of this study, land degradation is defined as the "reduction or loss of the biological or economic productivity and complexity of rain-fed cropland, irrigated cropland, or range, pasture, forest and woodlands resulting from land uses or from a process or combination of processes, including those arising from human activities and habitation patterns. These include: (1) soil erosion caused by wind and/or water, (2) deterioration of the physical, chemical, biological and economic properties of soils and (3) long-term loss of natural vegetation" (Briassoulis, 2019:26). The definition captures the occurrence of land degradation from diverse landscapes and the drivers of it. The process of land degradation has an impact on soil fertility; it is fertile soil that enables the agricultural community of Ladybrand to sustain their livelihood through quality produce. Therefore, the loss of economic value of soil affects the social and economic wellbeing of the community.

- **Livelihood**

Livelihood comprises capabilities, assets and activities that are pivotal for a means of living. Livelihood is sustainable when it can cope with and recover from stresses and shocks, maintain or enhance its capabilities and assets, while not undermining the natural resource base (Krantz, 2001:7). Therefore, land is an asset that is pivotal in the socio-economic wellbeing of people. Land degradation undermines capabilities of

land to yield to the livelihood of communities that have farming as their principal economic support.

- **Small-scale farmers**

Khalil, Conforti and Gennari (2017:8) defines small-scale farmers as an agricultural holding run by a family using mostly their own labour and obtaining a variable share of its income, in kind or in cash, from their produce. The family relies on its agricultural activities for at least part of the food consumed, be it through self-provision, non-monetary exchanges or market exchanges. Livelihood options for small-scale farmers can be among their own households or through wage employment by working on other farms (Pienaar & Traub, 2015:5).

- **Land care workers**

Land care workers are part of LandCare South Africa, which is a community-based programme supported by both the public and private stakeholders through a series of partnerships (LandCare South Africa, 1999). The general scarcity of natural and agricultural resources in South Africa necessitates the implementation of sustainable agricultural management practices. To achieve wider participation in agricultural support programmes and proactively involve all community members in the management of natural resources, the National LandCare Programme was initiated in 1997 (Brent & Mulder, 2005). The overall objective of this programme is to optimise productivity and to ensure sustainable use of natural resources, thereby attaining greater food security, job creation and a better quality of life for all. Land care workers in Ladybrand focus on the conservation of the natural resources (land) through sustainable utilisation and the creation of a conservation ethic through education and awareness (LandCare South Africa, 1999). They also assist small-scale farmers in the area with land management measures such as the removal of invasive alien plants (LandCare South Africa, 1999).

Ladybrand

The research site, Ladybrand, is a town located in the Eastern Free State, South Africa. It is a small agricultural town that is strategically located 15 km from Maseru, the Capital City of Lesotho (Tourist Attractions in Thabo Mofutsanyana Region, [sa]). The dominance of the agricultural sector in the town makes it suitable for the study.

The main agricultural activities in this region are mixed livestock and crop farming respectively (Maphalla & Salman, 2002:8). The town of Ladybrand is dominated by white farmers. The off-farm activities for small-scale farmers include taxis, spaza shops, businesses and part-time jobs such as gardening, street vendors and domestic work (Maphalla & Salman, 2002:8). The main economic activities are commercial farming, private sector activities, public sector activities and tourism (Municipalities of South Africa, [sa]).

1.2 THEORETICAL FRAMEWORK

The sustainable livelihoods approach (SLA) was the overarching theoretical framework that guided the study. It enabled the researcher to explore, understand and describe communities' perceptions of land degradation and how it influences livelihoods in Ladybrand. The need to create and sustain livelihoods as a means to get billions of people around the world out of poverty has become a major issue from the perspectives of both policy and global development discourse (United Nations (UN), 2008; United Nations Environment Programme (UNEP), 2006, 2007). Chambers and Conway (1992:6) define "livelihood" as consisting of "the capabilities, assets (stores, resources, claims and access) and activities required for a means of living". The livelihoods approach advances conceptual elements, namely assets, activities and capabilities that allow people to make a living sustainably (Nel, 2015:515). Twigg (2001:9) states that livelihood endeavours to position people at the centre of development, both in exploration and in participation. It is a holistic approach that recognises that livelihood strategies and outcomes are influenced by various factors and that both livelihoods and the factors that influence them are dynamic (Twigg, 2001:9).

The core principles of the SLA, as captured by the Department for International Development (United Kingdom. DFID, 1999: Section 1:3), are being people-centred, holistic, dynamic, building on strength, bridging the macro-micro gap and sustainability. People's livelihoods and assets are challenged by trends as well as shocks and seasonality over which they have limited control (United Kingdom. DFID, 1999: Section 2:2). People who are in disadvantaged positions are affected by seasonal shifts in prices, employment and food availability (United Kingdom. DFID,

1999: Section 2:2). Land degradation is a trend that contributes as well as intensifies trends, shocks and seasonality shifts.

The development interventions based on the SLA strive to strengthen people's ability to cope with the intent to make livelihoods sustainable (Nel, 2015:511). The livelihood approaches are anchored on the premise that all communities, no matter how disadvantaged, have strengths and assets/capitals that can aid self-reliance and wellbeing of the community (Nel, 2015:512). The framework identifies five key types of capital upon which people can assemble their livelihood. These include social, human, natural, financial and physical capital (United Kingdom. DFID, 1999: Section 2:3). As natural capital, land either contributes to or negatively affects community livelihoods, especially in communities such as Ladybrand where farming is a major socio-economic contributor to community wellbeing. Sen (1999:5) asserts that the socio-economic development of people is dependent on their access to economic opportunities, political liberties, social capacities and an enabling environment. This means that people can use opportunities only if they have access to them. Thus, poverty reduction and economic development are outcomes of access and assets in which institutions such as the government have an important enabling role to play (Sen 1999:5).

This theoretical framework was relevant for the study as it enabled the understanding that the livelihoods of most rural poor communities in Ladybrand are dominated by agriculture, which places land as a central asset aiding in the livelihood and development of people. Thus, degradation of land undermines the livelihood benefits that the community obtain from the land through agriculture. The SLA is instrumental in assessing communities' assets, activities and capabilities, and exploring how vulnerable people are in ascertaining livelihoods for sustainable outcomes (Nel, 2015:514). Insecurity, risk and vulnerability to stresses and shocks are primary concerns of poor people (Baumann, 2002:4) which, in the case of this study, applies to small-scale farmers and land care workers. Land degradation reduces the capacity of their land as an essential asset for a sustainable livelihood, which in turn imposes on their wellbeing. The SLA enhances communities' livelihood opportunities and outcomes, which reduces poverty, risk and insecurities (Serrat, 2008:2).

1.3 RATIONALE AND PROBLEM STATEMENT

Land degradation affects the quality of the soil and makes the land unsuitable for farming (Niranjani, 2011:6), which results in food insecurity (Wessels, Prince, Malherbe, Small, Frost, & Van Zyl 2007:274) and poverty. Land is an asset that supports the livelihoods of many households in Ladybrand through farming and livestock agriculture. The process of land degradation threatens the capacity of land to contribute and support the livelihoods of the community as well as the socio-economic benefits such as food security, income and employment generated from various agricultural practices. Land degradation limits the community's ability to achieve positive livelihood outcomes. The capacity of communities to attain these livelihood outcomes is influenced by the access they have to land as physical capital. Land degradation infringes this access and in turn has an impact on the overall wellbeing of the people. Socio-economic conditions such as population growth, poverty, limited infrastructure and access to markets restrict communities' capability to conserve the land from degradation (Jouanjean, Tucker & Te Velde, 2014:3).

The study was motivated by the increasing impact that climate change has on the planet and people and their wellbeing and livelihoods. Social work has a role in contributing to sustainable development, which has social, economic and environmental dimensions (UN, 2015). Furthermore, in alignment with environmental social work, the study responds to increasing calls of funders to integrate natural and social sciences in projects related to the environment. Environmental social work aims to coproduce 'transformative social change that creates a living, viable earth with equitable shared and distributed resources and opportunities (Rambaree, 2020:559). To this end, it was envisaged that the study will contribute to a broader study on the socio-economic impacts and dimensions of land degradation in Ladybrand to develop an innovative and adaptive monitoring system for land surface dynamics and degradation assessment in South Africa.[1]

It is not known how land degradation in the Ladybrand area affects the livelihoods of small-scale farmers and land care workers and what strategies are in place to

[1] The South African Land Degradation Monitor (SALDI) project includes international and national Natural Scientists in Germany (Friedrich Schiller University, Germany) and South Africa (various universities) and the Social Scientist team in South Africa in which the supervisor and student are engaged.

counteract land degradation for positive livelihood outcomes. The researcher furthermore envisaged that the study's findings would inform the development of policy and programmes aimed at sustainable land management that would enhance the socio-economic wellbeing of small-scale farmers and land care workers in Ladybrand.

The guiding research question for the study was:

- What are the perceptions of small-scale farmers and land care workers about land degradation in Ladybrand and how it influences their livelihoods?

The following sub-questions informed the research question:

- What contributes to land degradation in Ladybrand?
- In what way is land degradation influencing small-scale farmers and land care workers' livelihoods in Ladybrand?
- What strategies are in place to mitigate land degradation in Ladybrand?
- What strategies should be in place to mitigate land degradation for sustainable livelihood outcomes for small-scale farmers and land care workers in Ladybrand?

1.4 AIM AND OBJECTIVES FOR THE RESEARCH

The aim of the study was:

- To explore and describe the perceptions of small-scale farmers and land care workers about land degradation in Ladybrand and how it influences their livelihoods.

The objectives of the study were:

- To conceptualise and contextualise land degradation in a sustainable livelihood framework;
- To explore and describe what contributes to land degradation in Ladybrand;
- To explore and describe how land degradation influences livelihood in Ladybrand;
- To explore and describe strategies that are in place to mitigate land degradation in Ladybrand; and

- To recommend strategies to mitigate land degradation for sustainable livelihood outcomes for small-scale farmers and land care workers in Ladybrand.

1.5 RESEARCH METHODOLOGY

In this section, a brief outline is presented of the research methodology of the study. A more detailed discussion will follow in Chapter 4.

An interpretivist research paradigm and qualitative research approach were utilised for the study. Interpretive methodology requires that social phenomena be understood through the point of view of the participants rather than the researcher (Rehman & Alharthi, 2016:55). The qualitative approach enabled the researcher to explore and describe the phenomenon being researched (Fouché & Schurink, 2011:308), that is to better understand how land degradation influences the livelihoods of small-scale farmers and land care workers in Ladybrand.

Applied research was appropriate for the study as it intended to address a specific problem (land degradation) with the aim of using the outcomes of the study to influence social development (Gooyert & Größler, 2018:576). The instrumental case study design was adopted as the most suitable qualitative research design as it facilitates understanding and offers a thick description of the phenomena under study (Babbie & Mouton, 2011:33).

A purposive sampling method was used (Strydom, 2011:223) to select 10 small-scale farmers (general and commonage) and 16 land care workers for the study. The participants were considered for data collection to the point of data saturation; that is, a point where no new information is being provided (Dawson, 2009:54). The permission to access the participants was granted by three gatekeepers. For general small-scale farmers, permission was granted by the Assisi Mission Farm Fort Savage and for the commonage small-scale farmers by the Manyatseng Farmers Association (MAFA). For the land care workers, permission was granted by the Department of Agriculture and Rural Development of the Free State. Data for both study population groups were collected through focus group meetings. Thematic data analysis was used to analyse the data (Creswell, 2014:197; Creswell & Poth, 2018:185).

The ethical considerations relevant to the study will be discussed in Chapter 4.

1.6 CHAPTER OUTLINE OF THE RESEARCH REPORT

The dissertation consists of six chapters.

Chapter 1 consists of an introduction and general orientation of the study. It includes the definition of the key concepts, a brief overview of the theoretical framework, the rationale and problem statement of the study, the research question and the goal and objectives of the study. In addition, the chapter briefly indicates the research methodology of the study and presents an overview of the research report.

Chapter 2 presents the literature review. It contextualises land degradation, its causes, effects and possible mitigating strategies. The chapter also addresses sustainable land management (SLM), as well as factors that influence the implementation of SLM. Policy and legislation frameworks pertaining to land degradation and SLM are discussed.

In **Chapter 3,** the focus is on the theoretical framework of the study, namely the SLA. The chapter discusses sustainable development and its three pillars; it defines and discusses the sustainable livelihoods framework in relation to land degradation and SLM. Furthermore, various capitals or assets, livelihood diversification and the influence of SLA on SLM are discussed. The chapter also considers SLM within a South African context.

Chapter 4 offers a detailed discussion of the research methodology, consisting of the research approach, research type, design, population and sampling methods, data collection methods, data analysis methods and pilot study. Furthermore, the chapter indicates the relevant ethical issues of the study as well as the limitations of the study.

Chapter 5 presents and discusses the empirical study of the study.

Chapter 6 presents the key findings of the study, the conclusions and recommendations drawn from the study.

CHAPTER 2

LAND DEGRADATION AND SUSTAINALBE LAND MANAGMENT

2.1 INTRODUCTION

Land as a natural resource provides food, material and the supporting ecosystem services on which human life and biodiversity depend (Orr, Cowie, Castillo Sanchez, Chasek, Crossman, Erlewein, Louwagie, Maron, Metternicht, & Minelli, 2018:26). However, the gradual deterioration of the productive capacity of the land and competing land use has resulted in land degradation, with a substantial influence on environmental sustainability and livelihood security (Manikandan & Kurian, 2016:85). Land can be sustainably managed through the provision of practices and measures that serve to maintain ecological resilience and the stability of ecosystem services indefinitely, while providing sustenance and diverse livelihoods for humans (Economics of Land Degradation (ELD), 2019:17).

This chapter will focus on the dynamics of land degradation and how it influences the wellbeing and livelihoods of people. First, the chapter assesses land degradation on a broader scale, linking it with the SLA. The next discussion focuses on the causes and effects of land degradation and presents some solutions to mitigate land degradation. An extensive discussion of SLM follows in the subsequent section. Finally, the chapter concludes with a summary.

2.2 LAND DEGRADATION DYNAMICS IN SOUTH AFRICA

Land degradation is undoubtedly a global problem. Millennium ecosystem assessment (2005:14) reasons that over the past 50 years, the human species have dramatically reconfigured the conditions of the ecosystem with a speed incomparable to any history of humans. These alterations of natural resources have extensively disadvantaged many regions and populations. In South Africa, land degradation threatens the local resource base upon which people's communal livelihoods depend (Wessels et al., 2007:274). According to the NAPDLDD (2017:7), about 91 percent of South Africa's landscape is drylands, and this makes it disposed to desertification and land degradation. Both desertification and land degradation are critically connected to food security, poverty, urbanisation, climate change and biodiversity, and are therefore

among the most critical environmental challenges in South Africa. In addition, 80 percent of the land in South Africa is for agricultural use and subsistence livelihoods; 11 percent of it has arable potential, of which 82 percent is under commercial agriculture, while the majority (69 percent) is used for grazing.

Degradation is caused by multiple factors, both biophysical, such as climate, topography, hydrology and soil characteristics, and human factors, such as land use and management, policies and governance, migration, poverty and natural resource exploitation (Orchard, Stringer & Manyatsi, 2017:46). The dynamics of land degradation have significant implications for land users, for whom land underpins their socio-economic welfare (Orchard, Stringer & Manyatsi, 2017:46). Land degradation adversely depletes soil nutrients, which in turn directly affects their fertility, productivity and overall soil quality. Soil fertility decline is directly linked to low productivity and food insecurity and is at the heart of rural poverty (Dlamini & Chaplot, 2016:82). Because soil is one of the largest stores of carbon in direct exchange with the atmosphere, soil degradation also negatively affects society through climate change feedback (Dlamini & Chaplot, 2016:82).

Land degradation poses a challenge to the wellbeing of people in Ladybrand, whose means of survival is pivoted on land use practices such as farming. Land degradation has an influence on food security, international aid programmes, national economic development and natural resource conservation strategies (Wessels et al., 2007:274). Green social work, a specialised field of social work coined by Dominelli (2012), offers a holistic approach that seeks to integrate the interdependencies between people and the sociocultural, economic and physical environments as a means of protecting the environment and improving people's overall wellbeing (Androff, Fike & Rorke, 2017:400). Besthorn (2013:35) corroborates this from an environmental justice standpoint which emphasises the depreciation of environmental ills such as land degradation and an equitable distribution of environmental benefits or goods, which are integral for the benefit of human wellbeing and the sustainability of livelihood. Sutton et al. (2016:182) state that ecosystems, including those from agricultural land, have inevitable provisions towards the wellbeing of people. This supply of services has been compromised by land degradation, which decreases the productivity of these ecosystems and ultimately influences the community's livelihood. The socio-economic conditions in Africa are depreciating due to broken watersheds, reduction in

agricultural productivity and deforestation, which intrinsically links to the SLA and human poverty (Barman, Mandal, Bhattacharjee & Ray, 2013:1096).

The African population is already experiencing a number of socio-economic problems, such as poverty, food insecurity and increased mortality rates (UNEP, 2015:16). These hardships are intensified by land degradation, which further disadvantages people and leads to migration and conflict over arable land. Land degradation has an influence on productivity, which may affect food security as well as the livelihoods of those who derive their wellbeing from practising small-scale farming or working in commercial farms (Hamdy & Aly, 2014:712). Barbier and Hochard (2016:1) reason that the overall poverty in developing countries may be influenced by the concentration of communal populations on degrading, as opposed to improving, agricultural land. In South Africa, 68 percent of the country's land surface is occupied by rangeland and is mostly utilised for livestock agriculture. Large parts of this rangeland are already experiencing different levels of degradation (Rabumbulu & Badenhorst, 2017:218). In Ladybrand, in the Free State province, land degradation is dominant in the form of gully erosion, scrub encroachment and a general decrease in vegetation cover (Rabumbulu & Badenhorst, 2017:218). These events pose a threat to the production of livestock, the farmer's livelihood and the production of food in South Africa (Rabumbulu & Badenhorst, 2017:218).

Land degradation is a reflection of short-term or lasting deterioration in the functions held by the ecosystem and productivity (Hamdy & Aly, 2014:709). It is estimated that 20 percent of cultivated land, 30 percent forests and 10 percent of grasslands across the earth landscape are being degraded. This is mostly an outcome of human activities such as unsustainable land management activities and climatic changes (Hamdy & Aly, 2014:709). Land degradation has a direct impact on food security and economic development in South Africa through reduction in mass production. This entails that there will be an increase in food prices for consumers, eventually resulting in loss of income particularly for those who have agricultural land or labour as their economic support (Hamdy & Aly, 2014:712). Muloo et al. (2019:2) corroborate the above by highlighting that 10 to 70 percent of the Gross Domestic Product (GDP) of Africa's economy comes from agriculture, which is heavily affected by land degradation. The Industrial Development Corporation (IDC) (2019:5) published that 4 percent was the nominal contribution of the South African agricultural sector in 2018. These numbers

could have been influenced by the rapid degradation of arable land in South Africa or it could simply project how the nation is developing to other more industrialised economic activities such as finance and business services.

South Africa is dependent on biomass as a source of energy. In South Africa's rural areas, people still identify wood as the fundamental source of fuel for cooking and heating (Wessels, Mathieu, Erasmus, Asner, Smit, van Aardt, Main, Fisher, Marais, Kennedy-Bowdoin, Knapp, Emerson, & Jacobson, 2011:20). The average household in the lowveld region uses an excess of about 3 tonnes of fuel wood per annum (Wessels et al., 2011:20). This entails cutting down trees to provide household firewood, which eventually may result in a land surface empty of any plant material, which leads to the onset of land degradation. This is a reflection of how some areas in South Africa are still relying on primitive sources of energy, which could be owed to the government's inability to make provisions of developed sources of energy fairly. The effort to address the unjust distribution of industrialised sources of energy has been listed in Sustainable Development Goal Number 7, which advocates for cost-effective, dependable and sustainable modern energy (UN, 2015). The over-use and mismanagement of natural resources, and more particularly of land and its resources, have resulted in soil erosion and desertification. The deterioration of the soil quality threatens the livelihoods of many rural households who have their livelihood outcomes centralised on their access to fertile land for agriculture. Land degradation has different causes and particular effects, which will be discussed next.

2.3 CAUSES AND EFFECTS OF LAND DEGRADATION IN SOUTH AFRICA

The roots of land degradation in South Africa are a culmination of many corresponding events that are directly and indirectly linked. Environmental Protection (2014) states that the Free State is one of the provinces in the country that is severely affected by land degradation, desertification and drought. Hammad and Tumezi (2010:216) point out that land degradation is often identified as the consequence of existing social and economic conditions experienced by the land users and workers. Some of the social and economic conditions include population growth, poverty, overgrazing, deforestation and access to agriculture extension, infrastructure, opportunities and constraints created by market access as well as policies and general government effectiveness (Jouanjean et al., 2014:3). These conditions jeopardise all efforts aimed

at development as well as food security. The causes and effects of land degradation are embedded in these conditions, as will be outlined in the following discussion.

2.3.1 Population growth

Population growth hinders the periods of time where land is not planted. This influences the capacity of the soil to rest and renew its fertility as a result of constant agriculture expansion and increase in livestock (Jouanjean et al., 2014:3). South Africa has experienced a tremendous population growth since the beginning of the 21st century (Kiage, 2013:671). The population increased from 45 million in 2000 to 59 million in 2020; this number excludes the increase in livestock, which also contributes towards the stress on the land (Worldometers, 2020). Benard and Darkoh (2009:96) state that population growth leads to an increase in production and the supply of essentials such as water, energy, shelter and food, which directly and indirectly influences the ecosystem functions. Such a rapid growth in population can lead to intensified pressures on natural resources, namely water, land, forest and pasture, especially in rangeland ecosystems. The consequences are soil erosion and degradation that perpetuate food insecurity and poverty in Africa (Kiage, 2013:671). There has also been substantial growth in the agricultural sector globally and locally. Between 1961 and 2005, agricultural production doubled in Sub-Saharan Africa and was one of the main drivers of degradation in 65 percent of natural ecosystems globally (Thorn, Friedman, Benz, Willis & Petrokofsky, 2016:2). It is estimated that a 50–70 e increase in food production will be required in years leading up to 2040 to keep pace with the demands of global population growth, which is anticipated to reach 8–10 billion and which will simultaneously be accompanied with a decline in arable land (Thorn et al., 2016:2). As the population grows, supply of farmland is increasingly in competition with accelerated urbanisation (Thorn et al., 2016:2).

A substantial proportion of people in rural and urban areas depend on agricultural production as the main source of employment and livelihood. Therefore, population growth has an impact on land as an important economic sector in terms of food production, employment generation and improving the livelihoods of the poor to alleviate poverty (Kangalawe & Lyimo, 2010:987). Hammad and Tumezi (2010:216) propose the drafting and enactment of proper legislation, aiming at the protection of valuable lands, especially for agriculture and improving the community participatory

approach. This approach focuses on the community participation in the formulation of policies and strategies for resource conservation and management (Hammad & Tumezi, 2010:216).

2.3.2 Inaccessibility to markets, roads and transport

Inaccessibility to markets and poor infrastructure such as roads and transportation have an influence on the extent of land degradation. Ngqangweni, Mmbengwa, Myeki, Sotsha and Khoza (2016:2) describe market access as the capacity of farmers to capitalise on existing market opportunities. The socio-economic development of smallholder farmers is dependent on access to profitable markets, thus markets where they obtain information, farm organisations and income (van Tilburg & van Schalkwyk, 2012:35). This can contribute to profit incentives and empower farmers to upgrade yield production. Farmers can then mitigate land degradation by acquiring sustainable land and use information and practices effectively, which in turn may contribute to household income and food security (Ngqangweni et al., 2016:2). The assessment of cropland degradation indicates that access to markets increases profits and leads to the adoption of SLM practices (Nkonya et al., 2016:7). The increase in profits and SLM may also result in positive livelihood outcomes through food security and employment generation for farm workers. Ngqangweni et al. (2016:2) note that in South Africa, it is broadly understood that smallholder farmers experience difficulties to access profitable markets due to several factors. These factors include poor infrastructure, long distance to access output and input markets, expensive transport costs, absence of information (regarding markets, production and environmental issues such as land degradation), lack of technical assistance (training on sustainable land use) and inefficient record-keeping practices. Nkonya et al. (2016:10) state that access to markets, with the inclusion of government effectiveness and other significant variables, may reduce the cost of land degradation on community livelihoods.

According to Barbier (2012:2), many impoverished rural households or small-scale farmers find themselves in remote marginal areas, where access to central markets and government services is very poor. Access to markets, road and transport infrastructure is a significant problem in many areas of the country, hindering agricultural production. Small-scale farmers in the Eastern Free State are more affected by the barrier to access markets because of limited income to cover transport

cost as well as an underdeveloped transport system (Myeni, Moelesti, Tavhana, Randela, & Mokoena, 2019:7). The Thabo Mofutsanyana District Municipality (2014:29) states that the poor state of roads and transportation is one of the factors affecting agricultural production and land maintenance in Ladybrand. The inefficient road and transport system impede farmers' access to modern inputs that would enhance soil productivity. It also limits the transportation of the produce to the market (Birungi, 2007:20). It is at the markets where the farmers are able to obtain the necessary capital to invest in sustainable land conservation equipment (Birungi, 2007:20). Furthermore, access to lucrative markets could contribute towards the establishment of alternative non-farm employment that could diminish pressure on land resources, which may aid the socio-economic development of the community.

The government has, however, accorded policies aimed at infrastructure development in the Ladybrand area through the Mantsopa Local Municipality Draft Integrated Development Plan (Mantsopa Local Municipality, 2021). This draft has a priority to develop an efficient road and transportation system that will ensure more socio-economic growth for farmers in Ladybrand.

2.3.3 Poverty

Deep-rooted poverty leads to overdependence on natural resources for livelihoods which in some instances has undermined the capacity of the population to manage the resources sustainably (Kangalawe & Lyimo, 2010:987). Kirui (2016:2) observes that the connection between land degradation and poverty is greater in rural areas of developing countries, such as South Africa, where the livelihoods of the majority of the population are attached to agriculture. Poverty inhibits farmers to have access to equipment that enhances the rehabilitation of the land (Birungi, 2007:28). Most small-scale farmers live barely on subsistence level and do not have the capacity to use purchased inputs or to pay for labour to use the labour-intensive conservation technologies (Birungi, 2007:28). Thus, farmers are disadvantaged if they are unable to utilise effective land productivity enhancing inputs such as fertilisers, which contributes to the degradation of natural resources (Kirui, 2016:2). Farmers who are poor have limited access to financial, human and physical capital, which constrains their capacity to invest in sustainable land conservation practice; therefore, poverty is constantly being elevated in rural areas (Kirui, 2016:2). Poor small-scale farmers are

unable to compete for resources, including high quality and productive land and are therefore restricted to peripheral land that cannot sustain their practices. Consequently, land degradation is prolonged and poverty is advanced (Birungi, 2007:66).

The poor and food-insecure households may contribute to land degradation because they are unable to keep uncultivated land for given periods of time, make investments in land improvements or use cost-effective external inputs (Birungi, 2007:66). The over-dependency on natural resources, stagnation or reduction in agricultural productivity due to land degradation imposes serious income and livelihood constraints for rural and urban households, which therefore leads to poverty. Poverty contributes to land degradation and this, in turn, contributes to poverty; it is a cyclic process.

Nkonya et al. (2016:240) are of the view that high poverty and degradation are observed largely due to the weak governance and lack of policies that provide incentives for land improvement, which may inspire the land users to sustainably use the land. In South Africa, this might have been addressed through the introduction of the Spatial Planning and Land Use Management Act (16 of 2013) (Nel, 2015:2). This Act is the first piece of legislation in South Africa that provides a cohesive spatial planning and land use management system for the entire country and is applicable to all spheres of government (Nel, 2015:2). This Act emphasises redress, social justice and inclusion (Nel, 2015:2). The inclusiveness of this Act provides a platform to involve disadvantaged communities in land management initiatives that will benefit their livelihoods. The SLA indicates that disadvantaged people are in fact active agents responding to social and economic change. There is therefore a need to consider them not only as service users but also as citizens who have fundamental rights to democratic accountability and to a role in decision-making about urban policy (Cooper, 2009:172).

2.3.4 Overgrazing

Africa is closely linked with livestock agriculture. The main agricultural activities practised in Ladybrand are livestock and crop farming respectively (Maphalla & Salman, 2002:8), which have an impact on the use of land. Grazing is one of the most exhaustive forms of land use in Southern Africa (Pelser & Kherehloa, 2000:30). South

African Environment Outlook ([sa]:91) notes that 69 percent of agricultural land in South Africa is used for extensive grazing. Overgrazing is the mismanagement of the grassland, which results in shrinkage in grassland and an increase in livestock numbers (Barman et al., 2013:1097). A poorly handled grassland will result in land degradation as this will expose the land. According to Little, Hockey and Jansen (2015:1), South African grasslands are gradually being degraded through the increasing impact of overgrazing. In South Africa, it is estimated that 60 percent of the grassland ecosystem has been permanently transformed, while as little as 15 percent remains as natural grassland. Of the grassland biome, 25 percent is degraded to some degree and only about 2% is formally conserved (Little et al., 2015:1). Therefore, overgrazing could influence communities' livelihoods. A degraded grassland as a result of overgrazing could impact livestock productivity, which in turn influences the capacity of farmers to make profits from poor quality, less productive livestock. Income growth has also led to the expansion of the global demand for meat, which has tripled in the last 50 years, so that livestock now consumes 40 percent of the global feedstock (Thorn et al., 2016:2). Each factor mentioned has a direct impact on grazing land and degradation of natural resources.

Kairis, Karavitis, Salvati, Kounalaki and Kosmas (2015:361) assert that properly managed grazing land has an impact on soil preservation from wind and water erosion. The sustainable management of landscapes by monitoring livestock grazing produces advantageous conditions for vegetation and soil fertility, which will in turn mitigate the extent of land degradation. The full effect of SLM initiatives requires a bottom-up approach. Therefore, this study intends to comprehend the perceptions of local land users and workers perception of land degradation. Local input is fundamental to ensure that the researcher accurately understand what is locally important and have insight into the community's sustainable livelihoods and socio-economic growth (Fraser, Dougill, Mabee, Reed & McAlpine 2006:115). There is a close relationship between the causes and effects of land degradation, as discussed in the ensuing section.

2.4 EFFECTS OF LAND DEGRADATION

The effects of land degradation pose a challenge to the livelihoods and socio-economic development of the land users and workers. As the problem is more common in developing countries, an increasing population along with reduced productivity will lead to food insecurity, which may result in poverty (Barman et al., 2013:1099). Locally, land degradation affects food security, national economic development and natural resource conservation strategies (Wessels et al., 2007:274). Food insecurity violates the international human rights standard that everyone has the right to adequate food (Androff et al., 2017:402).

Land degradation often leads to migration, which creates social, economic and environmental imbalances as some areas become more populated while others are under-populated, creating a disparity on the distribution of resources (Barman et al., 2013:1099). It is this disparity that may either undermine or elevate a community's capacity to develop their social and economic capital. According to Devereux (2007:50), inadequate food production by farmers to achieve food security may entail resorting to other ways to provide food for their families, such as seeking off-farm employment elsewhere to cover the discrepancy between household crop production and household food needs. Conversely, migration may distort household social capital as, in some instances, relations are disintegrated due to the absence of some family members and community residents.

Niranjani (2011:6) points out that land degradation precipitates and prolongs poverty, particularly in rural areas, because it affects soil fertility, the amount and quality of water, the air and forests. Land degradation contributes to low and deteriorating agricultural productivity, and this in turn contributes to increasing poverty (Kirui, 2016:2). A stable agricultural productivity is an essential component that contributes to the sustainable livelihood of the community; thus, its deterioration can lead to an unstable socio-economic status and wellbeing of the community. In the next section, the researcher outlines SLM as strategy to mitigate land degradation and policy frameworks for agriculture and land use in Ladybrand.

2.5 SUSTAINABLE LAND MANAGEMENT AND POLICY FRAMEWORK FOR AGRICULTURE AND LAND USE IN SOUTH AFRICA

In this section, the discussion focus is on SLM and factors that influence the implementation of SLM practices. These factors include land tenure security, low access to finance and markets, institutional and policy frameworks, and knowledge and skill. Lastly, the policy and legislation framework pertaining to land degradation and land use in South Africa will be discussed.

2.5.1 Sustainable land management

SLM holds as one of the crucial ways to mitigate land degradation and conserve the quality of soil. According to Alemu (2016:502), SLM is defined as "the use of land resources such as soils, water, animals and plants for the production of goods to meet changing human needs while assuring the long-term productive potential of these resources and the maintenance of their environmental functions". SLM is an approach that endeavours to address the fundamental components of the global life support system. Since experience with the negative effects of natural resource exploitation has become pervasive, there has been increasing awareness that productive lands are getting scarce, land resources are limited and that the land under cultivation needs more and intensive care (Alemu, 2016:503).

Land is not limited to only the soils but also to the associated natural resources such as water, vegetation, landscape and microclimate that are parts of a wider ecosystem (Saguye, 2017:111). As the land is inter-connected with other natural resources such as the air and water, managing land appropriately will ensure a degree of sustainability in food supplies, poverty reduction and socio-economic conditions. It will also protect the environment and natural resources as well as provide ecological functions and services in a sustainable manner (Saguye, 2017:111). The primary aim of SLM is to match the complementary goals of providing environmental, economic and social opportunities for present and future generations, while maintaining and enhancing the quality of land (soil, water and air) resources (UNCCD, 2017:30). Liniger, Studer, Hauert and Gurtner (2011:19) explain the three components of SLM, namely the ecological, social and economic dimensions of SLM. Ecologically, SLM, aims to effectively combat land degradation. However, the majority of agricultural land is still not sufficiently protected, and SLM needs to spread further. Socially, SLM helps to

secure sustainable livelihoods by maintaining or increasing soil productivity, thus improving food security and reducing poverty, at both household and national level (Liniger et al., 2011:19). Economically, SLM aims to reimburse the investments made by land users, communities or/and governments. The production of agriculture for small-scale farmers and large-scale commercial farmers alike, as well as livestock farmers, is protected and improved. The considerable offsite benefits from SLM can often be an economic justification in themselves. These three are not separate, but inter-connected (Liniger et al., 2011:19; UNCCD, 2017:30).

Furthermore, practising the principles of SLM is among the few possibilities that will enable income generation without jeopardising the sustainability of land resources as a basis of production (Alemu, 2016:503). According to UNCCD (2017:30), SLM practices, combined with rehabilitation activities, can be an opportunity to create green jobs and enhance rural economic activity. The technical knowledge of locals on the conservation of ecological assets shows that the unsustainable use of land resources associated with land degradation is not merely linked with a limited level of awareness on land management. It at times is also associated with social, political and economic factors that determine the informed choice of land users in a sustainable manner (Alemu, 2016:503). The adoption and implementation of SLM practices would not be of much significance if the livelihoods of people were not at stake. In the context of the SLA, people are central and primary actors in the fight against poverty and vulnerability (Pons, 2008:14). Improved and sustainably managed agricultural production, the provision and securing of clean water and maintaining a healthy environment are essential for improved livelihoods of communities (Liniger et al., 2011:31). This is equally true for South Africa and towns such as Ladybrand. Therefore, there are increasingly calls for integrating scientifically proven knowledge with the farmers' and land users' indigenous knowledge on the current land degradation indicators to develop suitable options for improving land management as well as enhancing household livelihoods (Muloo et al., 2019:3).

2.5.2 Factors that influence sustainable land management and conservation investments

Land degradation adversely influences the conditions and the management of the natural capital such as water, soil and plants and therefore decreases productivity in

agriculture, which threatens the livelihood of the majority of people who depend on agricultural production for their wellbeing (Liniger et al., 2011:18). SLM is one of the key solutions in the mitigation of land degradation and enhancing productivity, decreasing seasonal changes in yields and supporting positive livelihood outcomes for communities in South Africa (Liniger et al., 2011:16). Hurni (1997:210) defines SLM as a system of practices, technologies and planning that endeavours to integrate ecological with socio-economic and political principles in the management of land for agriculture and other livelihood purposes. The aim is to meet the needs of the current and future generation while assuring the productive potential of these ecosystem services.

According to a report by Food and Agricultural Organisation (2007:1), the majority of rural households in South Africa are subsistence or smallholder farmers living in disadvantaged agricultural land and are dependent on natural resources for their wellbeing. These rural households are predominantly identified by small landholdings, insecure land tenure, limited financial capital and poor access to markets and employment opportunities (Food and Agricultural Organisation, 2007:1). Thus, natural capital is crucial for the livelihood outcomes of rural people and if they are not managed in a sustainable manner, the food security and livelihoods of the rural poor are at great risk. Designing appropriate intervention programmes for SLM requires proper understanding of the factors that determine the adoption of environmental conservation practices (Birungi, 2007:67). The following section will discuss the factors that are limiting the full actualisation of sustainable land management with reference to South Africa and the socio-economic benefits of implementing SLM.

2.5.2.1 Land tenure security

Land tenure security is regarded as a barrier toward the achievement of SLM. According to Nkonya, Pender, Jagger, Sserunkuma, Kaizzi and Ssali, (2004:15), land tenure security can affect initiatives aimed at land management because it may influence the ability of the farmers to invest in land improvement practices. This is because people are not eager to put effort into new land management practices on land which they do not formally own. Thus, for farmers to be able to implement long- or moderate-term land investment, they require security of tenure (Saguye, 2017:122). The Global Environment Facility (2019:20) avers that, in South Africa, land tenure is a

complex and developing subject. There are two identifiable forms of communal land management, namely the commonage which has comparatively undefined land use rights, and land reform where rights are allocated to groups of land users (Global Environment Facility, 2019:20). In Ladybrand specifically, commonages are not managed well, and unsustainable practices have a negative effect on the commonages according to the Free State Province Department of Agriculture and Rural Development (sa). Although support in managing commonages is available, there is no land to increase the commonages (Free State Province Department of Agriculture and Rural Development, [sa]). This decline in available land for commonages could be because the majority of the land surface is degraded.

Access to a land plays a significant role in the livelihoods of many communities in South Africa. However, these areas often lack procedural law or rules to enforce SLM practices, which makes them susceptible to land degradation that then threatens their livelihoods (Global Environment Facility, 2019:20).

Furthermore, the current situation of land tenure and land rights security is a legacy of the country's history. For instance, the passage of the 1913 Native Land Act by the European settlers disadvantaged African communities and prohibited their access to land (Phuhlisani, 2017:6). The Act defined the territorial segregation of the country, restricting Africans from acquiring land outside certain scheduled areas (Phuhlisani, 2017:6). According to Kepe and Hall (2016:1), the apartheid government moved poor African people into impoverished homelands, withholding land rights and security of tenure since they were not allowed to buy any land outside the scheduled territories. However, the government has made attempts to re-design land tenure security in an effort to provide ownership possibilities for black farmers who had worked or had other historical claims to white-owned farmland (Belinkie, 2015:233). These land tenure reforms were cemented by the Land Reform Act (3 of 1996) and the Extension of Security of Tenure Act (62 of 1997), which supported the land ownership interest of black people (Belinkie, 2015:233). Land reform has been criticised for several issues, such as poor support for emerging new farm owners after transfer settlements have been completed and lack of government coordination between different institutional stakeholders (education and agricultural policies) (Lemke, Yousefi, Eisermann & Bellows 2012:28). Land reform has also been challenged for its inability to integrate land reform within broader rural development, limiting its potential to promote social

equity and revive rural economies, which has an implication on the adoption of SLM practices (Lemke et al., 2012:28).

The majority of the people in the former homelands still lack access to land tenure and rights. To adopt and invest in land management practices, people need to have a sense of ownership of land (Saguye, 2017:122). Lack of SLM due to land tenure insecurity predisposes the land to degradation and ultimately influences the livelihoods of the community at large.

2.5.2.2 Low access to finance and markets

The inefficient implementation of SLM practices is interrelated with low access to finance and markets. Myeni et al. (2019:2) comment that, in the Eastern Free State area where Ladybrand is situated, socio-economic factors were indicated as the key aspects withholding smallholder farmers from adopting SLM practices. The Global Environment Facility (2019:21) states that farmers in the communal areas in South Africa are predominantly identified by the absence of technical expertise and resources to establish climate toughness. The unavailability of these resources is an aftermath of inadequate access to market and supplies. The assessment of cropland degradation illustrates that access to markets improves profits and leads to the implementation of SLM practices (Nkonya et al., 2016:7). Myeni et al. (2019:2) assert that access to the markets prompts the farmers' access to information and technical details regarding SLM. It is at the markets where the farmers are able to gather the necessary capital to invest in sustainable land conservation equipment (Birungi, 2007:20). Lack thereof leads to land degradation, which influences the productivity of agricultural land and the decline of both crop and livestock agricultural, resulting in progressive economic insecurity for households that depend on agriculture for the sustainability of their livelihoods (Global Environment Facility, 2019:21).

2.5.2.3 Institutional and policy framework

National policies and certain institutional arrangements influence facilitation of SLM practices. Natural resources and climatic factors determine the possible farming systems; however, national and international policies and institutional changes will continue to define the socio-economic factors that accentuate the continuation of land degradation or alternatively create an enabling environment for SLM to spread (Liniger

et al., 2011:44). An evaluation of the legal and institutional framework for natural resources conservation shows that there is a discrepancy in selecting effective policies, supporting institutions, adequate monitoring and enforcement, and motivation for compliance in the sustainable conservation of natural capital both on local and global levels (Kenea, 2008:10). Relevant policies and an institutional framework for SLM and land degradation will be discussed in full in section 2.5.3. However, there is an imperative need for policies that are uplifting SLM to promote and address the complication of sustainable land use, in particular policies providing incentives for SLM investments at household, community, regional and national level (TerrAfrica, 2009). Policies must address the root causes of land degradation, low productivity and food insecurity and simultaneously establish socially acceptable mechanisms for encouragement or enforcement (Liniger et al., 2011:44). There are clear opportunities to improve national policy frameworks in support of SLM and to overcome blocks that hamper the spread of SLM. Liniger et al. (2011:44) outline possible opportunities to SLM policy frameworks, which include:

- Creating an enabling institutional environment: Strengthening institutional capacity, clarifying roles and responsibilities, furthering collaboration and networking between institutions involved in implementation as well as research.
- Setting up a conducive legal framework: Creating acceptance of rules and regulations or setting up mechanisms of control and enforcement, defining meaningful laws for local land users to support compensation mechanisms, and recognising customary rights in the local setting.
- Improving land tenure and users' rights is a key entry point: Providing basic individual and collective security of resource use (mainly for small-scale land users), clarifying tenure and user rights to private and communal land, including locally negotiated tenure systems, regulations and land use. Protecting the rights of land under customary tenure, promotion of women's land rights in land registration and customary land tenure systems.
- Improving access to markets for buying inputs and selling agricultural products and other outputs: Developing and strengthening local informal markets, securing accessibility by improving infrastructure (especially access to roads), better understanding of the impact of macroeconomic, liberalisation and trade

policies on prices, facilitating markets for raw and processed products derived from SLM.

Land users and communities have a high chance to invest in enhancing the land and its natural resources, provided that a reliable institutional support, a favourable legal framework, access to markets and clarity about land tenure and user rights are in place (TerrAfrica, 2009).

2.5.2.4 Knowledge and skill

Knowledge and skill are identified as key factors in sustainable development and thus also for SLM (Breu et al., 2011:434). Knowledge and skills are components of communities' social capital; it implies the experience and insight that people hold to conserve or enhance their livelihoods through SLM (Breu et al., 2011:434). Knowledge and education elevate the ability of the communities to adopt, process and use available information on SLM. In South Africa, there is an inefficient and insufficient distribution of SLM knowledge in rural areas (Saguye, 2017:122; Global Environment Facility, 2019:19). Furthermore, experience indicates that endeavours to achieve comprehensive knowledge of SLM cannot exclusively rely on scientific knowledge; the knowledge of the local communities and other relevant stakeholders must be attached (Breu et al., 2011:434). However, the availability of local knowledge as a community's social capital has been challenged by migration since some community members are migrating to seek off-farm employment elsewhere to counter food insecurity and socio-economic disparity due to land degradation (Devereux, 2007:50).

The inclusion of local knowledge is encouraged by the fact that actions and strategies appropriate to land capital are an outcome of communities' perceptions, attitudes and overall socio-economic circumstances (Breu et al., 2011:434). Therefore, it was the goal of this study to seek perceptions of communities in Ladybrand on land degradation and how it influences livelihoods. Crossland et al. (2018:43) assert that approaches seldom integrate the knowledge or outlooks of participants, particularly that of local land users, resulting in a lack of information regarding their preferences and priorities. Thus, codification of local indigenous knowledge and scientific knowledge is valuable to achieve SLM. Knowledge and skills of SLM can be improved by developing and applying impact assessment and monitoring systems. This requires a collective approach from scientists, relevant stakeholders and community land users

(Breu et al., 2011:434). The assessment and monitoring systems can generate the efficacy, effectiveness and sustainability of adopted measures that are key to securing external support for SLM activities, using locally specific indicators at site level (Breu et al., 2011:434; Global Environment Facility, 2019:19).

2.5.3 Policy and legislation framework pertaining to land degradation and land use in South Africa

South Africa has a long history of research into land degradation, conducted on various levels, and government and public interventions to depict the concern of the nation towards the issue of land degradation (Hoffman & Todd, 2000:173). This section will discuss the legal and institutional frameworks that are used to promote the mitigation of land degradation and improve the livelihoods of people.

2.5.3.1 The Constitution of the Republic of South Africa

The Constitution of the Republic of South Africa (108 of 1996) is recognised as one of the most liberal constitutions in the world. Human rights are embedded in the South African Constitution, which establishes the fundamentals of the nation's legislation. Chapter 2 of the Constitution contains the Bill of Rights, which describes the rights of every South African Citizen (RSA, 1996). Sections 24 and 25 of the Bill of Rights advocate that all people have a right to an environment that is not harmful to their health or wellbeing. This upholds provisions to an environment that is secured for the benefit of the present and future generations through the application of legislative and other measures that safeguard environmentally sustainable development and utilisation of natural resources (equitable access to land) while upholding viable economic and social development (RSA, 1996). Thus, land degradation takes away the human right to live in an environment that upholds the wellbeing of people as their livelihoods are jeopardised. The fact that human rights related to the environment are identified in the Constitution cements the rights-based approach favoured by social work. According to Androff (2016:27), rights-based social work practice entails recognising and combatting the ongoing and harmful effects of discrimination that often violates environmental rights and social justice and results in poor welfare outcomes. The protection of environmental rights accounts for the unfair socio-economic impacts on the growth of the poor and vulnerable communities, particularly from rising pollution and degradation of ecosystem services (UNDP, 2014:5).

The following section will discuss the important content of South Africa's environment legislation since the right to a satisfactory functioning environment is substantially identified as a human right in Africa (Du Plessies, 2011:36).

2.5.3.2 National Environmental Management Act (107 of 1998)

The National Environmental Management Act (107 of 1998) stipulates that the state must respect, protect, promote and fulfil the social, economic and environmental rights of everyone and strive to meet the basic needs of previously disadvantaged communities. The Act further states that sustainable development requires the integration of social, economic and environmental factors in the planning, implementation and evaluation of decisions to ensure that development serves present and future generations. It aims to promote conservation (of land as a natural capital) and secure ecologically sustainable development (SLM practices) and use of natural resources while promoting justifiable economic and social development.

The National Environmental Management Act (NEMA) (107 of 1998) is guided by a set of principles outlined in Chapter 1 of the Act, which states that environmental management must place people and their needs at the forefront of its concern, and serve their physical, psychological, developmental, cultural and social interests equitably. Thus, what is indicated by NEMA is supported in the SLA principle of being people-centred. Therefore, NEMA protects people's livelihoods through the provision of external support (i.e. support from outside the household) to people in relation to their current livelihood strategies, social environments and their ability to adapt to stress and shocks; thus, the people, and not the resources they use, are the priority of concern (United Kingdom. DFID, 1999: Section 1:3).

The NEMA (1998) states that negative impacts on the environment and on people's environmental rights must be anticipated and prevented, and where they cannot be altogether prevented, be minimised and remedied. It elaborates further on the equity of impacts and the fact that vulnerable communities should be protected from negative environmental impacts such as land degradation, which influences food security and livelihoods of vulnerable communities. It recognises the principle that all persons should have equal access to environmental resources, benefits and services to meet their basic human needs. One of the most crucial principles noted by the NEMA is that of equal participation. It states that people should be empowered to participate in

environmental governance processes and must be equipped with relevant skills and capacities necessary for achieving equitable and effective participation. All decisions must take into account the interests, needs and values of all interested and affected parties; this includes recognising all forms of knowledge, including traditional and general knowledge (NEMA, 1998). Community wellbeing and empowerment must be promoted through environmental education, the raising of environmental awareness, the sharing of knowledge and experience and other appropriate means (NEMA, 1998), for instance raising awareness about SLM as a strategic means to mitigate land degradation.

Chapter 5 of NEMA (1998) highlights holistic environmental management. It states that there needs to be surety that the effects of activities on the environment, such as poor land use, receive adequate consideration before actions are taken in connection with them. It further emphasises adequate and appropriate opportunity for public participation in decisions that may affect the environment. NEMA (1998) recognises that the environment is held in public trust for the people; therefore, the beneficial use of environmental resources must serve the people's interest and protect the environment as the people's common heritage. Thus, land as a natural capital should be used in a manner that is sustainable and that captures the developmental needs of both current and future generations respectively.

The paragraphs above have clearly articulated how NEMA (1998) supports the human rights of South African citizens as enshrined in the Republic of the South Africa Constitution (108 of 1996). It promotes the human right to a protected environment and empowers people to participate in decision-making processes and the equity of those processes which link with environmental justice (Aucamp, 2015:90). NEMA (1998) adopts a holistic approach to the environment and supports the recognition of social, economic and biophysical aspects which relate to the principles of the livelihoods approach to obtain sustainable development and sustainable land use (Aucamp, 2015:90). Thus, NEMA (1998) safeguards the rights and sustainable conditions of the environment (land) as well as the people.

2.5.3.3 Spatial Planning and Land Use Management Act (16 of 2013)

The Spatial Planning and Land Use Management Act (16 of 2013), informally known as SPLUMA, is the first piece of legislation that provides a cohesive spatial planning and land use management system for the entire country and is applicable to all spheres of government (Nel, 2015:2). The objectives of SPLUMA (2013) are to:

- "Provide for a uniform, effective and comprehensive system of spatial planning and land use management for the Republic;
- Ensure that the system of spatial planning and land use management promotes social and economic inclusion;
- Provide for development principles and norms and standards;
- Provide for the sustainable and efficient use of land;
- Provide for cooperative government and intergovernmental relations amongst the national, provincial and local spheres of government; and
- Redress the imbalances of the past and to ensure that there is equity in the application of spatial development planning and land use management systems."

The SPLUMA (2013) is directed by a set of principles. Chapter 2 outlines the guiding principles which apply to all organs of state and other authorities responsible for the implementation of legislation regulating the use and development of land (SPLUMA, 2013). Thus, the Act poses a direct influence on sustainable land use and management, which in turn reduces and/or prevents land degradation and contributes to the sustainable livelihoods of the community as well as the recognition of social and environmental rights. SPLUMA (2013) guides the preparation, adoption and implementation of any spatial development framework, policy or by-law concerning spatial planning and the development or use of land. It directs the sustainable use and development of land. It also guides the consideration by a competent authority of any application that impacts or may impact upon the use and development of land. Land use management systems must include all areas of a municipality and specifically include provisions that are accommodating and appropriate for the management of disadvantaged areas, informal settlements and former homeland areas (SPLUMA, 2013).

The developmental principles of SPLUMA (2013) state that land development procedures must include provisions that lodge access to secure tenure and the incremental upgrading of informal areas (SPLUMA, 2013). Land use and development initiatives that pay homage to these principles are likely to give communities leverage to combat land degradation and enhance livelihoods. It aims to ensure that special consideration is given to the protection of prime and unique agricultural land. SPLUMA (2013) is guided by an agenda to support consistency of land use measures in accordance with environmental management instruments; this will ensure that the rights of people are realised. SPLUMA (2013) aims to support and stimulate the effective and equitable functioning of land markets. Land markets will allow land users to have more platforms for information dissemination, which can eventually contribute to land degradation mitigation. The principle of spatial resilience accommodates flexibility in spatial plans, policies and land use management systems to ensure sustainable livelihoods in communities that are vulnerable to suffer the impacts of economic and environmental shocks. This is also identified in SLA, which aims to support vulnerable poor communities to build up their assets. Therefore, SPLUMA (2013) ensures community resilience through sustainable spatial plans and land use management structures.

Chapter 5 of SPLUMA outlines land use management strategies. It asserts that a municipality must, after public consultation, adopt and approve a single land use scheme for its entire area. A land use scheme must give effect to and be consistent with the municipal spatial development framework and determine the use and development of land within the municipal area to which it relates. The aim must be to support economic growth, social inclusion and efficient land development, and to have minimal impact on public health, the environment and natural resources.

The Mantsopa Local Municipality Draft Integrated Development Plan (Mantsopa Local Municipality, 2021:49) supports the land use scheme of SPLUMA (2013). It asserts that the spatial development framework of the municipality will contribute to the gradual physical development of the municipality by setting up a spatial development structure, regulating the management of future development, allowing development pressures and additional investment, maintaining and further developing the economic potential of the municipality while protecting and integrating the natural environment of the area. SPLUMA (2013) recognises the significance of incorporating social,

environmental, economic and physical aspects in the development of land, as strategic effort to attain optimally functioning communities. It is an instrumental tool that clearly identifies the social and environmental rights of people, which are fundamental for the establishment of sustainable communities, for improving the quality of life of vulnerable communities and empowering sustainable land use and management practices.

2.5.3.4 National Action Programme to Combat Desertification, Land Degradation and to mitigate the Effects of Drought for South Africa (2017–2027)

The NAP to Combat Desertification, Land Degradation and to mitigate the Effects of Drought for South Africa is a gazetted programme. Its vision to identify and implement factors contributing to desertification, land degradation and drought as well as practical measures necessary to combat desertification and mitigate the effects of drought (NAPDLDD, 2017:15). This is achieved through universal improvement in land management and productive ecosystems that sustain livelihoods and ecosystem services for the benefit of current and future generations (NAPDLDD, 2004:54). NAPDLDD (2017:15) aims to address and improve the following objectives:

- Integrate long-term strategies to eradicate desertification and reduce the effects of drought, emphasise implementation and be integrated with national policies for sustainable development and all other relevant policies;
- Award particular attention toward the implementation of preventive measures for lands that are not yet degraded or which are only marginally degraded;
- Endorse policies and augment institutional frameworks which develop cooperation and coordination, in a manner of partnership, between the donor community, governments stakeholders at all levels, local populations and community groups, and facilitate access by local populations to relevant information and technology;
- Provide for effective participation at the local, national and regional levels of non-governmental organisations and local populations, both women and men, particularly resource users, including farmers and pastoralists and their representative organisations, in policy planning, decision-making and implementation and review of national action programmes; and

- To achieve SDG target 15.3, which aims to, by 2030, combat desertification, restore degraded land and soil, including land affected by desertification, drought and floods, and strive to achieve a land degradation-neutral world.

South Africa has limited information on the scale or rate of desertification and land degradation in the country and it impedes the nation's capacity to effectively implement the NAP (NAP, 2017:39). Therefore, NAP (2017:39) has a goal to ensure that by 2025 there is optimum support and empowerment for research by academic and scientific institutions on science, knowledge and technology on desertification, land degradation and drought, as well as climate change mitigation and adaptation. Furthermore, the NAP aims to, by 2030, ensure that degraded ecosystems are restored while contributing to ecosystem services delivery, climate change adaptation and mitigation. Through the empowerment of women, youth and private sectors, communities' ability to adapt to the effects of desertification, land degradation and drought will be strengthened. NAP (2017:50) also aims to ensure that, by 2030, there is recognition, formulation and implementation of South Africa's National Voluntary targets to ensure that a land degradation-neutral world is attained. Therefore, South Africa should consider effective practices on SLM to ensure that this is attained by 2030. The majority of the population in South Africa depend on land for agriculture to sustain their livelihoods (NAP, 2017:50).

2.6 SUMMARY

This chapter discussed land degradation dynamics in South Africa, looking at how it disadvantages communities whose livelihoods are pivoted on land use in the form of agriculture. Land degradation poses a threat to the production of livestock and farmers' wellbeing and the production of food in South Africa. Land degradation is recognised as the outcome of existing social and economic conditions experienced by the land users and workers. Causes of land degradation include population growth, poverty, overgrazing, deforestation, access to agriculture extension, infrastructure and opportunities, and constraints created by market access as well as policies and general government effectiveness. Land degradation affects food security, international aid programmes, national economic development and natural resource conservation strategies and the livelihoods of communities.

SLM can be implemented to address and mitigate the extent of land degradation in South Africa. SLM endeavours to introduce practices of using land resources in a sustainable manner. However, there are factors that are restricting the implementation of SLM in South Africa, which include land tenure security, knowledge and skill, low access to finance and markets, and institutional and policy frameworks. Policy and legislation frameworks pertaining to land degradation and land use in South Africa include the Constitution of the Republic of South Africa (108 of 1996) and in particular sections 24 and 25 of the Bill of Rights, which promote that all people have a right to an environment that is not harmful to their health or wellbeing. This right emphasises land degradation as an environmental concern that has an influence on people's wellbeing. The Constitution of the Republic of South Africa (108 of 1996), the NEMA (107 of 1998), the Spatial Planning and Land Use Management Act (16 of 2013) and the NAP to Combat Desertification, Land Degradation and to mitigate the Effects of Drought for South Africa (2017–2027) provide context of implementation of some of the fundamental objectives to address land degradation. The next chapter presents the SLA as the theoretical framework of the study.

CHAPTER 3

THEORETICAL FRAMEWORK OF THE STUDY

3.1 INTRODUCTION

The SLA has been central to the development of communities in many parts of the world (Scoones, 2009:171). In several locations across Africa, community livelihoods are intimately linked to farming, which is often practised at a small-scale and subsistence level (Lemke, Yousefi, Eisermann & Bellows, 2012:26). This entails that livelihoods are connected with the environment. However, the overdependence that people have on natural resources, which is identified in overgrazing and over-utilisation of land, is a key cause of environmental (land) degradation, affecting the socio-economic and environmental sustainability of communities across the region (Dai et al., 2020:1). Excessive use of environmental resources such as land also results in loss of ecosystem services, which in turn harms human wellbeing and induces households to seek alternative livelihood strategies (Dai et al., 2020:1). Therefore, effective ecological restoration and sustainable development initiatives and policies need to consider the livelihoods of local households and encourage their participation (Dai et al., 2020:1). The study endeavoured perto involve small-scale farmers and land care workers in order to consolidate their perceptions on land degradation and how it is influencing their livelihoods.

This chapter outlines the SLA as the theoretical framework that informed and guided the study. The discussion begins by conceptualising sustainable livelihoods within the broader framework of sustainable development. Eddins and Cottrell (2013:47) regard sustainable development as the guiding paradigm to the SLA. Sustainable development will be defined, as well as the three pillars of sustainability, namely social sustainability, economic sustainability and environmental sustainability (UN, 2015). The understanding and definitions of the three pillars of sustainability will give a frame of reference to sustainable livelihoods. The discussion moves on to unpack the overall theoretical framework that underpins the study, namely the SLA, with focus on the assets accessible to the communities, the vulnerability context of small-scale farmers and land care workers. The chapter uncovers livelihood diversification, application of SLAs in South Africa and the sustainable livelihood benefits of SLM.

The chapter is then summarised in an endeavour to connect the concepts of the sustainable livelihoods framework with the perspective of the preceding chapter on land degradation. Throughout the chapter, sustainable livelihoods and livelihood diversification are linked with land degradation and the perceptions of the communities.

3.2 SUSTAINABLE DEVELOPMENT

The Bruntland Commission Report, "Our Common Future", defines sustainable development as "development that meets the needs of the present without compromising the ability of future generations to meet their own needs" (UN General Assembly, 1987:43). The definition is an attempt to link economic development and environmental stability. Sustainable development is therefore about ensuring that developmental decisions are taking into account the potential impact they might have on the society, the environment and the economy for both current and future generations (Strange & Bayley, 2008:24).

According to Qobo (2013), the concept of sustainability comprises social, ecological and economic dimensions, which make sustainable development an endeavour in which the need to protect the environment should be balanced against the need to tackle challenges of growth and development. Thus, the need to address land degradation as an environmental concern should be aligned with socio-economic development.

3.2.1 Social sustainability

Social sustainability is described as the development or growth that promotes social change. It creates conditions that are well suitable for the cohabitation of socially diverse groups, such as gender equality and access to education, while advancing social cohesion and an improved quality of life for the general population (Gomaa & Sakr, 2015:204). Social sustainability facilitates efforts to reduce inequality through redistribution (Wade, 2006:18) as well as focus on addressing land degradation, poverty and lack of opportunities as factors that hinder poor people's attempts to engage in productive activities (Fosu & O'Connell, 2006:36). The limitation can also be considered here to include the challenges that small-scale farmers and land care

workers in Ladybrand face in implementing SLM practices. The cause of these challenges is inequitable access to assets and resources that promote such initiatives.

3.2.2 Environmental sustainability

According to Morelli (2011:5), environmental sustainability is "a condition of balance, resilience, and interconnectedness that allows human society to satisfy its needs [without] … exceeding the capacity of its supporting ecosystems to continue to regenerate the services necessary to meet those needs". Environmental sustainability relates to reversing biodiversity loss, the depletion of natural resources and improving the living conditions of all people through sustainable access to quality land, clean and safe drinking water and basic sanitation (Department of Environmental Affairs and Tourism, 2008). Thus, it points to the human right of all people to live in a safe, clean and healthy environment (Hawkins, 2010:69). Concern with environmental sustainability stems from the realisation that the environment sustains the country's economy and the livelihoods of individuals. For example, in the case of this study, land sustains the livelihoods of small-scale farms through agriculture (UNEP, 2006). Environmental sustainability becomes more imperative when one considers that poor people in their quest to construct sustainable livelihoods may prioritise short-term survival strategies without considering the sustainable use of natural resources, thereby leading to degradation of natural capital (Rakodi & Lloyd Jones, 2002). Small-scale farmers may adopt unsustainable farming methods, such as growing monoculture crops with minimum crop rotation. This form of farming practice depletes nutrients and water supplies and has a negative impact on topsoil (De Vos, 2016). There is a dynamic relationship between environmental sustainability, poverty and degradation of natural resources that see the poor and marginalised communities suffering disproportionately from environmental impacts such as land degradation (Miller, Hayward & Shaw, 2012:217). These inequities make environmental sustainability difficult to attain.

3.2.3 Economic sustainability

Economic sustainability means achieving and maintaining a base-line level of economic welfare (Rakodi & Lloyd Jones, 2002). Economic sustainability implies a system of production that satisfies present consumption levels without compromising future needs (Mensah, 2019:9). The economic dimension of sustainability is largely

determined by increased income, which in turn may be used to satisfy consumption and basic needs. A major determinant of economic sustainability is economic growth. Global and national economic growth determines the form that rural livelihoods assume (Neves, 2017). Economic growth does not only involve an increase in private income, but it can also significantly contribute to generating resources that can be channelled to improve services. Public healthcare, basic education, safe drinking water and implementation of SLM policies and practices are of the areas where improvement can be seen (Sen, 2000:2032).

The three dimensions of sustainability, namely social, economic and environmental sustainability, are intertwined in the SLA. This will be next discussed.

3.3 SUSTAINABLE LIVELIHOODS APPROACH

A livelihood is sustainable when it can cope with and recover from stress and shocks and maintain or enhance its capabilities and assets, both now and in the future, while not undermining the natural resource base (Carney, 1998:15). Stress in this context entails pressures which are typically cumulative, predictable and variously continuous, such as seasonal shortages, rising populations, declining soil fertility and air pollution (United Kingdom. DFID, 1999). Shocks refer to unexpected and disturbing impacts, such as floods, fires, civil unrest and economic turmoil (United Kingdom. DFID, 1999). Both “stress” and “shock” have the potential to threaten, to varying degrees, the sustainability of small-scale farming and land care employment as a livelihood strategy. The definition of sustainable livelihoods embodies resilience and the ability to cope, adapt and improve, while being environmentally responsible (De Silva, 2013:9). Environmental responsibility may entail the implementation of SLM practices and policies for small-scale farmers and land care workers. The people become vulnerable when they are unable to attain sustainable livelihoods and cannot cope with the changes they face or are unable to adapt by shifting livelihood strategies (Lombard, 2019:184). Therefore, it is important to evaluate people’s historical experiences of responses to various shocks and stresses when assessing their resilience and the ability to positively adapt to changes (Lombard, 2019:184).

The livelihoods approach aims to obtain an authentic and practical insight of small-scale farmers and land care workers’ strengths or assets (capitals) and how they attempt to convert these assets into positive livelihood outcomes (United Kingdom.

DFID, 1999). Some of the assets include land, water, trees, livestock, farm equipment, social networks and knowledge and skills (Chambers, 1995:174). Communities may adopt various ways to nurture and combine the assets they have in creative ways to support their livelihoods (United Kingdom. DFID, 1999). For instance, the farmers are able to sustain their livelihoods through crop and livestock farming (Gwiriri, Bennett, Mapiye & Burbi, 2021:2).

SLA takes note of what people do in order to make a living, what resources are available at their disposal to use in pursuit of livelihood strategies, what the challenges are that they are likely to encounter as well as the institutional and policy settings that either aid or impede their progress in pursuit of a sustainable livelihood (Ellis, 2006: 346). According to DFID (United Kingdom, 1999), the SLA aims to develop an understanding of the factors that influence people's choices of livelihood strategy. This insight is gained in part by considering the vulnerability context and the resources that people have at their disposal. SLA seeks to aid poor people in achieving lasting improvements against the pointers of poverty that they identify and define. Carney (2002:11) argues that SLAs have been shown to add value to efforts in reducing poverty. The premise is that the effectiveness of development activity can be enhanced through manageable evaluation of poverty and its causes (Ashley & Carney, 1999:4). This entails opting a broader and informed perspective of the opportunities for development activity, potential impact and alignment with livelihood priorities and placing people and the priorities they define firmly at the centre of analysis and objective-setting (Ashley & Carney, 1999:4). SLA is founded upon evolving thinking about poverty reduction, the way the poor live their lives and the significance of structural and institutional issues (Ashley & Carney, 1999:4). It is a way of positioning people at the centre of development, therefore improving the effectiveness of developmental initiatives (United Kingdom. DFID, 1999). The core principles that underpin SLA are discussed next (United Kingdom. DFID, 1999).

People-centred: Sustainable poverty elimination will be achieved only if external support focuses on what matters to people, understands the difference between groups of people, and works with them in a way that is congruent with their current livelihood strategies, social environment and ability to adapt.

Responsive and participatory: Poor people themselves must be key actors in identifying and addressing livelihood priorities. Outsiders need processes that enable them to listen and respond to the poor.

Multi-level: Poverty elimination is an enormous challenge that will be overcome only by working at multiple levels, ensuring that micro-level activity informs the development of policy and an effective enabling environment, and that macro-level structures and processes support people in building upon their own strengths.

Conducted in partnership: With both the public and the private sector.

Sustainability: There are four key dimensions to sustainability, namely economic, institutional, social and environmental sustainability. These dimensions are important and, to achieve sustainability, a balance between them must be found.

Dynamic: External support must recognise the dynamic nature of livelihood strategies, respond flexibly to changes in people's situations, and develop longer term commitments.

According to Krantz (2001:10), the SLA is guided by three understandings into poverty. The first understanding is that there is no "automatic relationship" between economic growth and poverty reduction; it depends on the capabilities of the poor to take advantage of the growing economic opportunities. Sen (1999:5) asserts that the socio-economic development of people is dependent on their access to economic opportunities, political liberties, social capacities and an enabling environment. This means that people can use opportunities only if they have access to them. Thus, poverty reduction and economic development are outcomes of access and assets in which institutions such as the government have an important enabling role to play (Sen 1999:5).

The second insight is that poverty is not solely an aspect of low income but it also includes other measures such as bad health, illiteracy, absence of social services and generally a state of vulnerability and feelings of powerlessness (Krantz, 2001:10). It enables one to conceptualise the fundamental connections between different measures of poverty and how improvements in one area may positively influence other areas. For example, educating small-scale farmers and land care workers on SLM may increase their ability to manage the land sustainably, which in turn could improve

their yield production capacity (Krantz, 2001:11). Finally, it is acknowledged that poor people know what is best for them and it is therefore important to include them in the planning and designing of policies and projects intended to improve their livelihoods (Krantz, 2001:11). Giving them a voice in matters concerning them will improve their participation and commitment to the project (Krantz, 2001:11).

The SLA seeks to reinforce the positive aspects (factors which promote choice and flexibility) and mitigate the constraints or negative influences, such as laws or policies that hinder their development (United Kingdom. DFID, 1999), mainly imposed by transforming structures and processes. Figure 3.1 shows the various components of the framework and how they link with each other. The arrows on the diagram do not represent direction cause-effect but serve to show the inter-linkage and influence that one component of the framework has on the other (United Kingdom. DFID, 1999).

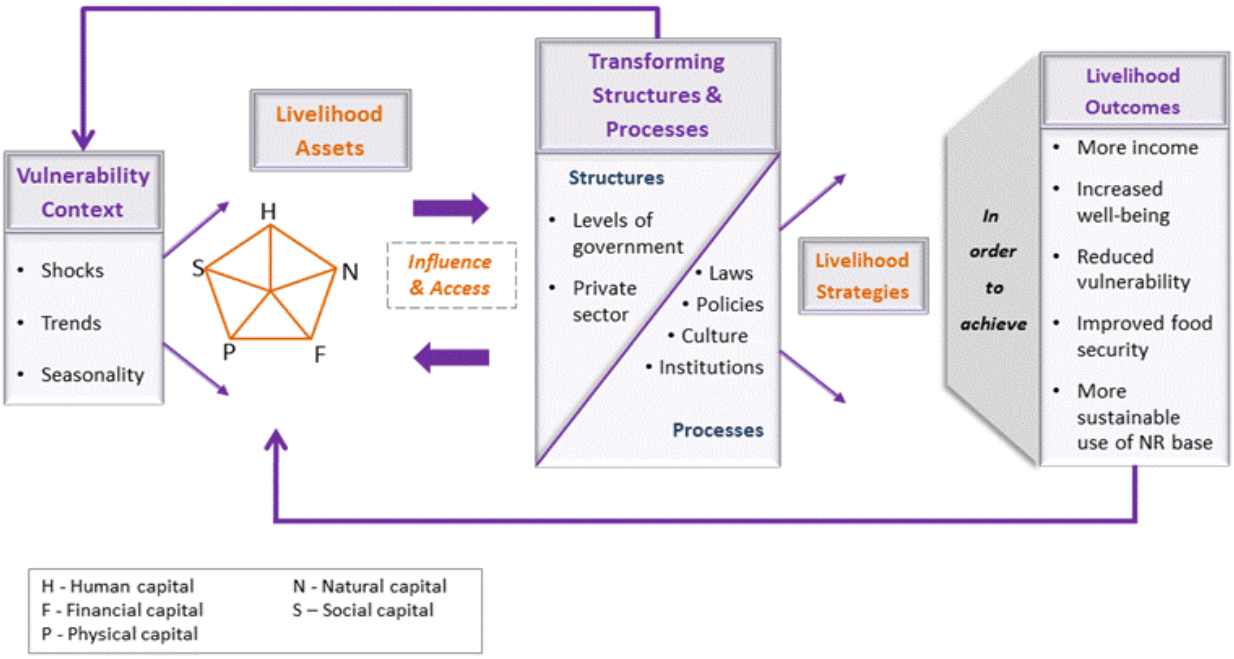

Figure 3.1: The Sustainable Livelihoods Framework

Source: DFID (United Kingdom, 1999: Section 2.1)

The sustainable livelihoods framework consists of five interlinked components as presented in the diagram. These are the vulnerability context, livelihood assets, transforming structures and processes, livelihood strategies and livelihood outcomes. One can focus on any part of the framework as long as the overall picture of the framework is observed (Lombard, 2019:187). These five components are discussed

next. The researcher will start the discussion with the vulnerable context which SLA intends to influence.

3.3.1 Vulnerability context

Vulnerability is a concept that integrates exposure to a threat with defencelessness or sensitivity to its negative effects (Devereux, 2001:508). The vulnerability context frames the external environment in which people exist; the factors that make up the vulnerability context have a direct impact on people's asset status and the livelihood options that are available to them (United Kingdom. DFID, 1999: Section 2.2). As highlighted in the diagram, the environment which forms people's vulnerability context comprises trends, shocks and seasonality (Allison & Ellis, 2001; Ellis, 2000). Trends are in the form of demographic trends, resource trends and trends in governance. Shocks refer to human, livestock or crop health shocks; natural hazards such as floods or earthquakes; economic shocks, and conflicts in the form of national or international wars. Seasonality refers to seasonality of prices, products or employment opportunities. The livelihoods of people as well as their assets are influenced by critical trends, shocks and seasonality over which they have limited or no control (United Kingdom. DFID, 1999: Section 2.2). For disadvantaged communities, seasonal shifts in prices, employment opportunities and the availability of food are one of the noteworthy and most enduring sources of hardships (United Kingdom. DFID, 1999: Section 2.2).

Having insight into the local context is important in relation to the nature of local livelihoods; that is, what livelihood strategies people use and the limiting factors in attaining their livelihood objectives (United Kingdom. DFID, 1999). Livelihood strategies are not communally fixed. An entire community might face exposure to a livelihood threat, such as land degradation, drought or food price inflation. However, vulnerability or resilience is differentially distributed across households depending on relative wealth and access to alternative income sources, including support from extended family and social networks (Devereux, 2001:509). Accordingly, vulnerability depends upon the assets that a household has and the extent to which the asset holders can adapt (Carney, 1998). Furthermore, vulnerability is characterised as insecurity in the wellbeing of individuals, households and communities in the face of changes in their external environment (Devereux, 2001:509). One progressive

approach to address the vulnerability context of the poor (or in the case of this study, vulnerability context of small-scale farmers and land care workers) is to ensure that vital institutions and organisations are alert to the needs of the poor (United Kingdom. DFID, 1999). Policies and information that improve communities' efforts towards the adoption and implementation of SLM practices could play an important role in improving communities' livelihood strategies.

3.3.2 Capital assets in livelihood choices

The second component of the sustainable livelihood conceptual framework is the assets which poor people possess. Alternatively called capitals, livelihood assets can be thought of as livelihood building blocks. It is the assets that people attempt to transform into positive livelihood outcomes (United Kingdom. DFID, 1999: Section 2.3). Diverse positive livelihood outcomes are obtained by having different assets and the more assets one has, the greater the range of options and ability to manoeuvre between various strategies in search of sustainable livelihood outcomes. Assets may be material or social, tangible or intangible and they form the premise on which livelihoods are built (Scoones, 1998). The framework as indicated in the diagram, identifies five key types of capitals upon which people can assemble their livelihoods. These include human capital (knowledge, skills and good health), financial capital (financial resources), social capital (network of relationships), physical capital (infrastructure and production equipment) and natural capital (natural resource stocks including land) (United Kingdom. DFID, 1999: Section 2:3). Land can be identified as a capital that either assists or affects community livelihoods, especially in communities such as Ladybrand where farming is one of the major socio-economic contributors to people's wellbeing.

Instead of focusing on vulnerabilities, the sustainable livelihood framework seeks to define the strengths embedded in the livelihoods of the most disadvantaged groups in society. These strengths can then be developed in accordance with the assets at their disposal as an attempt to reduce poverty (Ellis & Freeman, 2005). A range of assets is needed to yield the entire livelihood outcomes that people require. The five livelihood capitals or assets are elaborated on below.

3.3.2.1 Natural capital

Natural capital is also known as environmental or ecological capital (Porritt, 2009). Natural capital is the term used to describe the stocks of natural resources from which further resources and services which may prove useful to livelihoods can be developed (UNDP, 2017:7). A broad variety of resources fall within this category, including arable land and soils, trees, fossil fuels, habitat, temperature regulation, water, erosion control and biodiversity to mention a few (UNDP, 2017:7).

Natural capital is important not only to those who derive their entire livelihood from natural resource-based activities such as crop and livestock farming (United Kingdom. DFID, 1999). Everyone else, including those who derive their livelihood from alternative strategies such as informal economic participation, also depends on natural capital. For example, disasters like forest fires that destroy natural capital and cause air pollution may be fatal to human health. They affect the respiratory system, posing a serious threat to human capital and curtailing people's ability to engage in various livelihood strategies. Therefore, understanding how natural capital is used, both on its own and in conjunction with other resources, is fundamental to support the creation and sustainability of livelihoods through sustainable management of natural capital.

3.3.2.2 Human capital

Human capital refers to the skills, knowledge, ability to labour, good health and physical capability of workers and is vital for the successful pursuit of different livelihood strategies (Scoones, 1998:7; Chambers & Conway, 1992:10). Aside from its intrinsic value, human capital is required to leverage all other forms of capital. Because of this, while not sufficient as a stand-alone resource, it is significant for the attainment of positive livelihood outcomes (UNDP, 2017:4). The dual characteristic of human capital is such that, on the one hand, it is an asset or building block or means of achieving a livelihood. On the other hand, accumulating human capital in the form of good health and good education may in itself constitute an ultimate livelihood objective. In that respect, human capital becomes both a means to an end and its accumulation being, effectively, an end in itself (United Kingdom. DFID, 1999).

Human capital can be accumulated in both a direct and indirect manner. Both of the accumulation processes can be achieved only if people themselves are willing and

able to invest in their human capital. In the case of this study, it will be achieved by attending training sessions or workshops on SLM, and accessing the markets for their yields (United Kingdom. DFID, 1999). If they are prohibited from doing so by opposing structures and processes (e.g. formal policies, lack of informed role players or social norms), indirect support to human capital development will be particularly imperative to eradicate those barriers (United Kingdom. DFID, 1999). Indirect support to human capital development may involve reformation of policies linked to SLM, agricultural education and training. Reforming may also apply to organisations working with farmers and land care employees, education or training. By so doing, positive changes will be made in local institutions (such as culture or norms) which limit access to agriculture and land management education or training to small-scale farmers and land care workers (United Kingdom. DFID, 1999). Other types of indirect support can include gender equality and creating opportunities with a better reward for those who have already invested in training (UNDP, 2017:4).

Additionally, when considering knowledge-based human capital, one needs to go beyond knowledge and skills derived from the conventional education system, such as educational institutions, to involve indigenous knowledge systems often conveyed informally through community associations. The contribution by community associations towards building human capital needs to be acknowledged (United Kingdom. DFID, 1999). In the case of this study, it was important to combine empirical scientific knowledge with that of the farmers and land users' indigenous knowledge on the current land degradation indicators to, according to Muloo et al. (2019:3), develop suitable options for improving land management as well as enhancing household livelihoods.

3.3.2.3 Social capital

Social capital is defined as "features of social organisation, such as networks, norms and trust that facilitate coordination for mutual benefit" (Ruzek, 2014:28). According to Narayan (1997:3), social capital means the rules, norms, obligations, reciprocity and trust embedded in social relations, social structures and societies' institutional arrangements which enable its members to achieve their individual and community objectives.

Social capital can expedite investment in the conservation of resources and reduce poverty in several ways. First, it facilitates transmission of knowledge about technology and markets. This can result in reduced degradation because of the subsequent adoption of technologies associated with knowledge transfer (Birungi, 2007:32). For instance, Isham (2000) and Narayan (1997:64) find that villages in Tanzania with higher social capital were much more likely to use fertiliser, agrochemical inputs or improved seeds. The use of such inputs contributes to increased agricultural productivity and household incomes and therefore supports positive livelihood outcomes. Scoones (1998:8) defines social capital as the social resources (networks, social claims, social relations, affiliations, associations) upon which people draw when pursuing different livelihood strategies requiring coordinated actions. According to the DFID (United Kingdom, 1999), the social resources are development through the following ways.

- Networks and connectedness, which can be vertical or horizontal. The networks foster trust and induce cooperation, which in turn expand people's access to wider institutions, for example political or civic bodies.
- Membership of more formalised groups, which often adhere to mutually agreed rules, norms and sanctions.
- The social resources can also take the form of relationships of trust, reciprocity and exchanges.

Increasing evidence indicates that social cohesion is critical for the growth of societies economically and for development to be sustainable. Social capital is not only a component of the institutions which underpin a society, but it is also the glue that binds them together (Stirrat, 2004:26). Porritt (2009) contends that social capital adds value to any activity or economic process and also facilitates a process whereby people share and, in partnership, develop their human capital through it. Social capital among farmers and land users, as established through community involvement, may also improve social responsibility by promoting the use of sustainable agricultural farming and land use practices and thereby contribute to environmental sustainability. In this sense, social capital has been evidenced to hold a positive influence on the environmental awareness of farmers, and thus on the adoption of new environmentally friendly agricultural practices (Gómez-Limón, Vera-Toscano & Garrido-Fernández, 2014:5). Thus, communities that are gifted with substantial stocks of social capital and

civic associations are in a feasible position to provide resolutions to disputes, share vital information, set up informal insurance mechanisms, employ successful development projects and confront vulnerability (Wolz, Fritzsch & Reinsberg, 2005:2). Small-scale farmers and land care workers can increase the flow of information through participation in social networks (Wolz et al., 2005:2). For example, prices, location of new markets, sources of credit, treatment of plant or livestock diseases and sustainable land use practices can be easily exchanged among members (Wolz et al., 2005:3). Involvement in local networks and attitudes of mutual trust make it accessible for small-scale farmers and land care workers to reach collective decisions and implement shared action. Individual farm entities have limited bargaining power to influence price negotiations with companies buying their produce but joint marketing through networking with other groups can help to maximise their income (Wolz et al., 2005:3).

According to DFID (United Kingdom, 1999), of the five groups of livelihood assets, social capital is the one closely linked to structures and processes. From that point of view, the relationship between social capital and structures and processes is said to be two-way. On the one hand, social capital may be said to be a product of structures and processes. On the other hand, social structures and processes may be said to be products of social capital (United Kingdom. DFID, 1999). For instance, through improving the efficiency of economic relations, social capital can boost people's income and rates of saving, thereby directly influencing financial capital. In a similar vein, knowledge shared within social networks plays a key role in building human capital (United Kingdom. DFID, 1999). According to Narayan (1997:50), social capital is distinguishable from human capital in that it is relational, entrenched in social structure and it holds positive public characteristics. Thus, social capital is a facet of social structure in which a person is stationed; it is not the personal property of any of the persons who benefit from it.

DFID (United Kingdom. 1999) identifies some of the drawbacks of social capital. For example, power relations in hierarchical networks may hinder people from moving out of poverty by closing avenues for mobility. Moreover, claims for assistance may come when the connections are also struggling themselves and therefore not in a position to help. Notwithstanding the drawbacks, social capital, as stipulated by DFID (United Kingdom. 1999), can be an end in itself. Thus, social capital has the privileged quality

of being, in some cases, self-reinforcing, and stocks can be upgraded rather than exhausted by the right type of utilisation.

3.3.2.4 Financial capital

Financial capital is defined by Scoones (1998:8) as consisting of cash, credit savings and other economic assets, including basic infrastructure and production equipment and technologies, which are essential for the pursuit of any livelihood strategy. DFID (United Kingdom, 1999) highlights two primary sources of financial capital. First are available stocks consisting of cash savings, credit or liquid assets, such as farm produce, livestock and jewellery, as well as financial provisions by the financial institutions, such local banks and microfinance companies. Second are regular inflows of money in the form of income, pensions, remittances and other transfers from the state. Mumuni and Oladele (2016:3) posit that financial capital in agriculture is generated and converted from farmers' produce into cash for household expenses and is also to be used for savings towards seasonal stress and shocks. Farmers depending on their training and support from extension officers can utilise formal and non-formal financial resources and institutions. This type of livelihood strategies and activities can guarantee the level of financial capital they can access or which is available to them (Mumuni & Oladele, 2016:3). Apart from converting their product into cash and obtaining support from financial institutions, labour works by the farmer and other diverse livelihood activities within the available period can result in strong financial capital for farmers and land users (Mumuni & Oladele, 2016:3). DFID (United Kingdom. 1999) postulates that financial capital is the most versatile of the five categories of assets and cites the following three points to support this assertion.

- It can be converted with varying degrees of ease, depending on transforming structures and processes into other types of capital.
- It can be used for direct achievement of livelihood outcomes, for example buying food to reduce food insecurity and purchasing equipment to maintain sustainable land use and mitigate land degradation.
- It can also be transformed into political influence. It can give people access to active participation and influence in policy formulation and legislation.

It is owing to the scarcity of financial capital (United Kingdom. DFID, 1999) that the poor find the other forms of capital (such as social and natural) more important to them.

3.3.2.5 Physical capital

Physical capital is made up of the basic infrastructure and producer goods needed to support livelihoods (Porritt, 2009; United Kingdom. DFID, 1999). Infrastructure consists of changes to the physical environment that enable people to meet their basic needs and to be more productive while producer goods refer to the tools and equipment that people use to function more productively (United Kingdom. DFID, 1999). Physical capital at the disposal of small-scale farmers and land care workers consists of tangible assets, such as land, infrastructure, equipment, tools and production inputs. Infrastructure includes transport infrastructure, buildings and structures, water supply (including irrigation), energy (electricity) and communications (e.g. cell phone technology, internet). Tools and equipment consist of production-related machinery implements (including traditional technology), while inputs would include fertiliser, pesticides and planting material (Arowolo, Obi, Masika & Letty, 2011:6). According to DFID (United Kingdom, 1999), infrastructure in the form of roads and telecommunications optimises the connection between remote rural areas and urban areas and also facilitates the transmission of information and migration, which may also contribute towards SLM practices by small-scale farmers and land care workers. Rakodi (1999:326) posits that the absence of investment in physical capital inhibits farmers from using appropriate inputs and market opportunities. Thus, investment in physical infrastructure is also necessary for the development of non-farm economic activities, which also presents opportunities for livelihood diversification for farm households.

DFID (United Kingdom, 1999: Section 2.3.4) lists the following components of physical capital as being essential for sustainable livelihoods: affordable transport, secure shelter and buildings, adequate water supply and sanitation, clean affordable energy, and access to information and communication. The success of informal economic activities, including informal trading of yields, also depends on adequate access to these components of physical capital. Thus, emphasis should be placed on policies that enhance the productivity of farming activities by small-scale farmers. This may include yield-increasing technology which primarily focuses on the poor, for example a focus on small-scale farmers' crops and livestock, and improvements or stabilisation of the price of inputs bought, or outputs produced by mainly small-scale farmers (Rakodi, 1999:326).

It is significant to bring insight into the dynamic nature of the five capital assets as components sustaining the livelihoods of people. For instance, land is regarded to be a natural capital in providing ecosystem services that also cater to the livelihoods of people through farming. It can also generate social capital by providing prestige connections in the community and still be a form of financial and physical capital. In light of this, it is reasonable to suggest that there is need to identify the livelihood capitals as inter-connected rather than look at them as individual development blocks.

3.3.3 Transforming structures and processes

Transforming structures and processes are institutions, organisations, policies and legislation that shape livelihoods, determine access to various types of capital (United Kingdom. DFID, 1999) and regulate how assets may be utilised. Institutional and policy processes operate within defined contexts such as the people's history, land use, climate change and other trends and shocks. Transforming structures and processes are of fundamental significance as they function at all levels and effectively determine access, terms of exchange between different types of capital and benefits to any given livelihood strategy (Shankland, 2000). Transforming structures and processes determine the following (United Kingdom. DFID, 1999):

- Access to various types of capital, livelihood strategies, decision-making bodies and sources of influence;
- The forms of exchange between different types of capital; and
- Returns (economic and otherwise) to any given livelihood strategy.

Both structures and processes influence people to make livelihood choices. It is important to recognise that while structures and processes are vital in transforming assets and enhancing livelihoods, they can be restrictive if they are not representative and pro-poor (Ellis, 2000). More common are policies and regulations that affect the attractiveness of particular livelihood choices through their impact upon expected returns (United Kingdom. DFID, 1999). Transforming structures and processes occupy a central position in the framework and directly feed back to the vulnerability context (United Kingdom. DFID, 1999). Most of the significant challenges that threaten the sustainability of the work of small-scale farmers and land care workers are found in this component of the framework. These structures and processes are explained in more detail below.

3.3.3.1 Transforming structures

Structures have been defined as the “hardware" or organisations that are responsible for designing and implementing legislation that impacts on livelihoods (United Kingdom. DFID, 1999: Section 2.4.1). Structures, especially governmental ones, exist at various levels and operate in cascading levels with varying degrees of autonomy and scope of authority, depending on the extent and nature of decentralisation (United Kingdom. DFID, 1999). Table 3.1 below shows examples of structures divided between public and private sectors. Some are more important to livelihoods than others, though all of them may in one way or the other have an impact on livelihoods.

Table 3.1: Examples of transforming structures that pose an impact on livelihoods

Public Sector	**Private Sector**
• Political (legislative) bodies at various levels from local through to national • Executive agencies (ministries, departments) • Judicial bodies (courts) • Parastatals/quasi-governmental agencies	• Commercial enterprises and corporations • Civil society/membership organisations (of varying degrees of formality) • NGOs (international, national, local)

Source: DFID (United Kingdom, 1999: Section 2.4.1).

Structures are imperative because they make processes function (United Kingdom. DFID, 1999: Section 2.4.1). Public sector bodies such as courts are required to enforce legislation. Traders enable markets to facilitate trades between buyers and sellers. Therefore, the lack of relevant structures can be a major hindrance to development (United Kingdom. DFID, 1999: Section 2.4.1). This is a significant challenge in remote rural areas where important organisations in both private and public sectors do not reach these areas. Subsequently, these areas experience poor service delivery, markets become dysfunctional and people’s general vulnerability and poverty increase (United Kingdom. DFID, 1999: Section 2.4.1).

Institutional structures are “capital” passed down from history. They regulate the general governance settings and more precisely determine the power dynamics between state and citizen as well as the distribution of equity between citizens, while having an indirect influence on social and economic livelihoods (Hobley & Shields, 2000:11). Kollmair and Juli (2002:8) describe structures as the hardware (private and public organisations) "that set and implement policy and legislation, deliver services, purchase, trade and perform all manner of other functions that affect livelihoods" (United Kingdom. DFID, 1999: Section 2.4.1). Change in livelihood outcomes is influenced by change in these structures. Thus, the opportunities presented to individuals are highly determined by the institutional environment in which they operate (Hobley & Shields, 2000:11). Therefore, lack of access to organisations of the state often results in people having limited knowledge of their rights and limited insight of how the government operates. This disempowers people and creates a challenge for them to apply pressure to facilitate change in the planning and implementation of policies and legislation that influences their livelihoods (United Kingdom. DFID, 1999: Section 2.4.1).

3.3.3.2 Transforming processes

Processes are the “software” which determines how structures and individuals operate and interact (United Kingdom. DFID, 1999: Section 2.4.2). Processes operate at a variety of different levels, sometimes overlapping and conflicting with one another (United Kingdom. DFID, 1999). Table 3.2 below shows some of the processes of importance to livelihoods.

Table 3.2: Examples of transforming processes that impact on livelihoods

Policies	Legislations	Institutions	Culture	Power Relations
• Macro • Sectoral • Redistributive • Regulatory	• International agreements • Domestic	• Markets • Institutions that regulate access to assets	• Societal norms and beliefs	• Age • Gender • Caste • Class

		• Rules of game within structures		

Source: DFID (United Kingdom, 1999: Section 2.4.2).

As explained by DFID (United Kingdom, 1999) in the table above, policies inform the development of new legislation and provide a framework for actions of the public sector implementing agencies and their sub-contractors. Institutions, also called “rules of the game”, are informal practices that structure relationships and make the behaviour of organisations somewhat predictable (United Kingdom. DFID, 1999: Section 2.4.2). Institutions operate both within structures and in interaction between structures. Institutions are embedded in and are a product of the culture of communities or larger societies. As such, they are structured by rules and norms of society (Scoones, 1998). DFID (United Kingdom, 1999) goes further by pointing out that there are hierarchies of power embedded in culture and these hierarchies confer a particular status on people and constrain their behaviour and opportunities according to factors such as gender and age.

Processes are important to every aspect of livelihoods. The following are just a few examples of how processes are significant to livelihood outcomes (United Kingdom. DFID, 1999: Section 2.4.2).

- Processes provide the incentives from markets through cultural constraints to coercion that stimulate people to make particular choices (e.g. which livelihood strategy to pursue, where to pursue it, how much to invest in different types of livelihood assets, how to manage a resource).
- Processes grant – or deny – access to assets.
- Processes enable people to transform one type of asset into another through markets, for instance physical assets such as agricultural produce into financial assets after selling it.
- Processes have a strong influence on inter-personal relations – how different groups treat each other.

Scoones (1998:12) posits that having insight on processes allows the identification of restrictions or barriers and opportunities (or “gateways”) to sustainable livelihoods.

3.3.4 Livelihood strategies and livelihood outcomes

Livelihood strategies, alternatively knowns as “adaptive strategies”, is the overarching term used to signify the range and combination of activities and choices that people undertake in order to achieve their livelihood goals or livelihood outcomes (United Kingdom. DFID, 1999). There is consensus on the classification of livelihood strategies into the following areas on farms: livestock, agriculture or land-based activities; off-farm activities (comprising non-agricultural income sources such as wage employment, self-employment, property income and remittances); and non-labour sources of income (namely social welfare and grants) (Alemu, 2012:4; Neves, 2017). This is not a question of people moving from one domain of livelihood strategies to another (agriculture to wage employment). Rather, it is a dynamic process in which they combine activities to meet their various needs at different times (United Kingdom. DFID, 1999). Livelihoods typically comprise multiple and dynamic portfolios of different dynamic activities, which are constantly evolved and improvised depending on available capital resources at a given point in time (Scoones, 1998).

Livelihood strategies are regulated to a greater extent by the assets that the people have at their disposal as well as the transforming structures and processes, which include the institutions, policies and laws that govern particular activities. Ideally, people should have a wide range of livelihood strategies from which to choose in order to reduce their vulnerability. However, in relation to this study, some small-scale farmers and land care workers are forced to adopt other forms of livelihood strategies (rural-to-urban migration, self-employment) because their agricultural land is degrading as result of the challenges (see section 2.3). The structures and processes that could mitigate this are not actively engaging with the community to address this matter and equip them with skills and knowledge to implement sustainable land use practices.

Livelihood strategies themselves must also be subject to analysis (Krantz, 2001:9) and they often consist of combinations of activities, which Scoones (1998:9) refers to as “livelihood portfolios”. These include (1) agricultural intensification or extensification, (2) livelihood diversification, and (3) migration. That is, small-scale farmers can gain more of their livelihood from agriculture through intensification (more output per unit area through capital investment or increases in labour inputs), or from extensification

(more land under cultivation). They could also diversify to a range of off-farm income-earning activities (such as informal economic activities like informal trading of goods and services) or they move away and seek livelihood elsewhere (Scoones, 1998:9).

The livelihood outcomes that are of interest to this study, which should be realised through livelihood strategies, include more income, increased wellbeing, reduced vulnerability and improved food security. Small-scale farmers and land care workers can achieve the above-mentioned livelihood outcomes only if their livelihood activities are made sustainable, particularly in a social and economic perspective.

3.3.5 Livelihood diversification

Livelihood diversification is defined as a process by which households develop and maintain a diverse portfolio of activities and social support competences, over time, in an endeavour to secure survival, improve their living standards and manage risk (Ellis, 1998:4). Brons (2005:2) notes that livelihood diversification entails widening of income-generating activities away from solely crop and livestock production. The concept implies a process of dynamic change and continuous adaptation. Livelihood diversification can be seen as an attempt by individuals and households to find alternative ways to raise incomes and reduce environmental risk (Hussein & Nelson, 1998:3). Diversification can be categorised in two forms, namely on-farm and non-farm diversification, undertaken to generate income additional to that of the main household agricultural activities (Barrett, Reardon & Webb, 2001:1). On-farm diversification may entail the maintenance of a diverse spread of crop and livestock production activities that intertwine in numerous ways. A good example is intercropping, which refers to growing two or more crops on the same piece of land. The crops complement each other in their usage of soil nutrients, sunlight and other resources (Ellis, 2000).

Conversely, non-farm diversification involves looking for businesses or employment opportunities outside the conventional crop production and livestock rearing. It also entails using formal sector resources and skills in informal economic activity (Oyaliwola, 2013:28). Twine (2013) highlights the importance of livelihood diversification as a way of enhancing livelihood resilience, which in turn underpins livelihood sustainability. Livelihood diversification protects households from

uncertainty and reinforces their resilience to shocks and stresses which are characteristic in rural communities (Twine, 2013).

Based on the definition of livelihood diversification by Ellis (1998), it can be implied that driven by survival or the need to improve their standard of living, households build up a diverse portfolio of activities and social support capabilities. They can integrate a number of livelihood activities like agricultural crop production, livestock production, wage work and cottage industry to list a few to provide or supplement income. The blend of activities will depend on a household's ability to access different livelihood opportunities (Ellis, 1998:5; Bryceson, 2002:731). The availability of assets such as savings, land, labour, education, access to market or employment opportunities and other public goods is a crucial factor in ascertaining a household's capability to diversify. Opportunities to diversity vary among households (Mutenje, Ortmann. Ferrer & Darroch, 2010), with differences in the quality of resources (land, labour, capital), access to markets and the role of institutions in deciding the extent to which diversification occurs (Oyaliwola, 2013:30). Therefore, factors such as land degradation disrupts households' capability to diversify as some of the diversification activities may require good quality land and soil. The degree of diversification of the household array of activities is determined not only by asset portfolios but also by it having the skills, location, capital, credit and social connections to pursue other activities (Hussein & Nelson, 1998:19). In the case of this study, it would be feasible to equip farmers and land care workers with essential skills and social capital that buttresses their livelihood strategies of diversification. As households encounter reduced availability of arable land due to land degradation, diversification can be an immediate response (Oyaliwola, 2013:30).

Adoption of activities that are less predisposed to disturbance from climate impacts is one way for rural households to monitor uncertainty surrounding the future effects of climate change on agricultural production. Thus, households with a more diversified income base are more equipped to withstand the unfavourable weather shocks (Asfaw, Argaw & Bayissa, 2015:3). Conversely, households exposed to the risks of weather and other shocks such as land degradation have substantial reasons to devise strategies to adapt or cope with the effects of the environmental deteriorations (Asfaw et al., 2015:3).

Reasons for diversification as a livelihood strategy can be divided into two primary considerations, namely necessity and choice. Necessity refers to any involuntary and indispensable reasons for diversifying. For instance, reduced access to land (due to land degradation), declining crop yields, natural or civil disasters such as drought, floods or civil war resulting in displacement and abandonment of previous assets (Ellis, 2000:291). Choice refers to voluntary and forward-thinking for diversifying such as capitalising on seasonal wage-earning opportunities, investing in children's education, saving money to invest in non-farm businesses or the purchase of vital inputs or capital equipment for the farm enterprise (Barrett, Reardon & Webb, 2001:316; Davies, 1996:5; Hart, 1994).

3.3.6 Constraints of livelihood diversification

Hussein and Nelson (1998:19) point out that barriers to or constraints on diversification involve a large number of interlinked and context-dependent factors, which are summarised next (Hussein & Nelson, 1998:19).

Macroeconomic and policy context: Economy and policies in operation influence the livelihood diversification options that people have at their disposal. Some of the constraints posed by the state on the economy and policies include no urban centres in proximity, access to markets and restrictions on internal and/or cross-border movement and trade. More constraints include government policies which extract surplus from people trying to diversify or which impede their preferred diversification strategies, policies that encourage decentralisation and the development of small-scale labour-intensive enterprises, and availability of infrastructure (markets, roads).

Institutional limitations: Institutions such as religion and politics have norms and values that exclude women or other groups from participation in certain livelihood diversification activities. Rules exist which exclude certain people from informal credit markets (including borrowing and gift-giving) and restrictions on the access to certain activities for lower classes exist are in place.

Skills and time: Limited availability of education and skills training, in the case of this study, would entail lack of training and education in SLM and livestock farming. Primary activities such as looking after the household and children result in women not having enough time to pursue diversification strategies.

Physical environment: Degraded or insufficient natural resources. Thus, land degradation is a barrier towards livelihood diversification.

Seasonality: Climate risk and uncertainty, for example shortage of rain or floods and poor harvests, inhibit the possibility of people to exercise their livelihood diversification strategies.

Therefore, according to Hussein and Nelson (1998:20), poor households have limited channels to diversification activities. These people may find it more difficult to access other means to diversify because of, for example, their lack of power in decisions about the distribution of land or common property resources, which limits their choice to diversify outside their immediate livelihood strategies.

3.3.7 Impacts of diversification

According to Ellis (1998), livelihood diversification carries both positive and negative impacts on households' way of living. These impacts are elaborated on below.

3.3.7.1 Positive impacts

- *Risk reduction:* Diversification enables spreading of risks across different activities whereby factors that create risks for one income source are not the same as those that create risks for another.
- *Higher income:* Diversification promotes making better use of available resources and skills and taking advantage of spatially dispersed income earning opportunities.
- *Asset improvement*: Cash resources obtained from diversification may be used to invest in or improve the quality of household assets. Assets are equipment that small-scale farmers may utilise to adopt SLM practices.
- *Environmental benefits*: Diversification can potentially make provisions that benefit the environment by providing options that lessen the time spent in exploiting natural resources. This may entail a decrease in the exploitation of land as households diversify to other money-generating activities which may overall reduce land degradation.
- *Gender benefits:* Where activities are equally or better accessed by women, it is possible for diversification to improve the independent income-generating

capabilities of women and, in so doing, also improve the care and nutritional status of children.

3.3.7.2 Negative impacts

- *Income distribution:* Diversification can be associated with widening disparities between the incomes of the rural poor and the wealthier citizen. This occurs if the wealthier citizens are able to diversify in more advantageous labour markets than the poor.
- *Farm output:* Some types of diversification may result in stagnation on the farm, especially when there are lucrative distant labour markets for male labour, resulting in the depletion of the labour force required to undertake peak production of the small-scale farm.
- *Adverse gender effects:* Where male labour is predominantly able to take advantage of diversification opportunities, women may be even more relegated to the domestic sphere and subsistent food production. Baiphethi, Viljoen and Kundhlande (2009) suggest that one of the major effects of livelihood diversification is the growing feminisation of agriculture, as men commonly follow migratory labour opportunities. Therefore, women remain home to be disposed to home gardens and other agricultural tasks to ensure food production for the household. The empowerment of women may yield positive results as women are more likely to invest the additional income in children and family (Ellis, 1998).

Livelihood diversification can therefore result in positive or negative outcomes that may influence the livelihoods of people. Therefore, the impacts need to be considered in applying SLA in South Africa, as will be presented in the next discussion.

3.4 APPLICATION OF SUSTAINABLE LIVELIHOOD APPROACHES IN SOUTH AFRICA

In the South African context, the SLAs have been utilised by development agencies such as Care-South Africa, DFID and Khanya, in partnership with community-based organisations with significant success (Khanya-African Institute for Community-Driven Development, 2003). Cooper, Goldman, Marumo and Toner (2002:9) note that of all the international donors in South Africa, DFID has invested the most in SLAs. In an

effort to address the livelihoods of communities in South Africa, the National Development Plan (NDP) (National Planning Commission [NPC], 2012) outlined a strategic vision for the rural economy of South Africa to 2030. The NDP envisions a multiplicity of interventions that increase the capabilities of rural communities, but the specifics of the plan itself give strong attention to agricultural activities. It is stated: "(a) the primary economic activity in rural area ... agriculture has the potential to create close to 1 million new jobs by 2030 …" (NPC, 2012:197). The 1 million jobs cover all types of agricultural enterprises, from small subsistence farms to large commercial farms and include jobs created in indirect secondary industries supporting agricultural production, such as land care workers (Daniels, Partridge, Kekana, & Musundwa, 2013:2).

Ensuring the improvement of livelihoods and the development of agriculture in line with the needs of small-scale farmers and land care residents requires an authentic understanding of sustainable livelihood dynamics. The development of policies, which will push the rural economy towards the NDP targets, requires first identifying the current path and obtaining knowledge about the inherent complexities which exist. These complexities refer to, for instance, the influence of land degradation and apartheid aftermath on their livelihood outcomes (Partridge et al., 2018:2). Taking from Sen's (1999) concept of freedom, the approach states that people should have freedom (or rights) to choose in order to pursue the lives they value. Thus, in order to understand the premise of development for small-scale farmers and land care workers in Ladybrand, it is essential to understand what capabilities people possess to pursue the kind of lives they value. The question can also be asked: What assets do people have that can help them to lead fulfilling lives? (Mazibuko, 2012:175). Sen (1999:5) asserts that the socio-economic development of people is dependent on their access to economic opportunities, political liberties, social capacities and an enabling environment. Therefore, development is about the freedom at the disposal of people to make choices of what is of value to them. Sen (1999:3) defines development "as a process of expanding the real freedoms that people enjoy".

3.4.1 Influence of apartheid on the sustainable livelihoods of small-scale farmers and land care workers

The freedom that small-scale farmers and land care workers have to attain for the sustainable livelihood outcomes they desire in South Africa is to a greater extent influenced by the historical context of apartheid. South Africa's history of racial discrimination during the country's apartheid regime resulted in the majority of the population being marginalised outside of the mainstream economy. This marginalisation has been particularly evident in the agricultural sector, which is prevalent in the country's rural areas (Mazibuko, 2012:181; Pauw, 2007:195; Partridge et al., 2018:3). How the local African people in South Africa accessed and utilised the available freedoms and capital assets was greatly determined by prejudiced political institutions of that era and this has had long-lasting effects up to the present, influencing the livelihood outcomes of the majority to this day (Mazibuko, 2012:181). Lack of land, vulnerability, unemployment, poor delivery of basic services and, above all, poverty remain central to the lives of the majority of the population in South Africa. This has forced many households to turn to informal activities to obtain a livelihood, including an increased dependency on traditional land-based activities (Lahiff, 2003:2). In a developing nation such as South Africa, people who are economically, culturally, institutionally, socially, politically or otherwise marginalised are particularly vulnerable to environmental issues because of having fewer resources to support them to cope with disaster such as land degradation (United Nations Framework Convention on Climate Change, 2018:4). They earn low wages, have limited choices regarding location and employment, are less able to afford food or to save and accrue assets, and are frequently powerless. Both global and local consequences of environmental damage have an impact on poor people in South Africa (Drimmie & Van Zyl, 2014:277).

3.4.2 The link between green economy and attainment of livelihoods in South Africa

The overdependence on natural resources to obtain livelihoods has been central towards the establishment of the green economy. The UNEP defines the green economy "as one that results in improved human wellbeing and social equity, while significantly reducing environmental risks and ecological scarcities" (UNEP, 2011:16).

This is linked with green social work which offers a holistic approach that seeks to integrate the interdependencies between people and the sociocultural, economic and physical environments as a means of protecting the environment and improving people's overall wellbeing (Dominelli, 2012:25). Focusing on green economy stems from the realisation that growth has previously been attained at the cost of degradation and unsustainable use of "ecosystem goods and services that underpin livelihoods" (UNEP, 2011:20). The livelihoods of the majority of the poor in South Africa "depend directly on natural resources", often involving exploiting "fragile environments and ecosystems" (UNEP, 2011:19). In an effort to pursue redistributive measures or satisfy the social dimension of sustainability, there is a need to connect the green economy to the informal economy (Smit & Musango, 2015). Green economy goes further than environmental sustainability; it is also concerned with "redistributive measures that reduce inequality and poverty" (Smit & Musango, 2015:1). Thus, connecting the substantive activities of small-scale farmers and land care workers with the green economy may foster an inclusive green economy. Such an approach goes a long way towards achieving sustainable livelihoods, sustainable development and poverty eradication.

3.4.3 Vulnerable and marginalised groups in South Africa

Land degradation shocks and stresses already inhibit households from escaping poverty and poor societies are disproportionally susceptible to these shocks because they are more exposed and experience more consequences when affected (Hallengate et al., 2016:369). Keshavarz, Karami and Vanclay (2013:120) assert that vulnerable households are further affected by social and economic impacts. These include reduced household income, deficiency of substitute income sources, increased workload, conflict of arable land, food insecurity and malnutrition, health effects and reduced access to health services, reduced access to education, unequal drought relief and rural-to-urban migration, which all emanate from environmental issues. The psychological and emotional impacts of environmental issues include depression, frustration and alienation; changed family plans such as delaying marriage; and family and community disharmony and disintegration (Keshavarz et al., 2013:120). The researcher believes that increased exposure to these environmental issues further decreases people's ability to cope with this exposure, making them even more vulnerable and creating deficiency on livelihood capitals.

In the world in general and in South Africa in particular, there is evidence of an increase in gender-based violence and ongoing safety issues for women and girls in post-disaster spaces (Alston, 2015:358). Stain et al. (2011:1594) mention that women affected by environmental issues experience higher stress levels than their male counterparts. This is because women usually give priority to their children and other members of the family when there is limited food during periods of devastation caused by the impact of land degradation (Nguyen, Prabhakar & Shaw, 2011:256). Furthermore, globally, women have more limited access than men to land, decision-making, technology and education, even though women are the ones who contribute significantly to the survival of agriculture and farming families (Hetherington & Boddy, 2013:51). Women's symptoms are more strongly related to the social demands placed upon them rather than the traumatic experience itself (Stain et al., 2011:1594). In addition to women, children are particularly vulnerable to the health effects of environmental issues, including those that are climate-related, owing to their physical, physiological and cognitive immaturity (Jankowska, Weeks & Engstrom, 2012:224).

Older people are also consistently recognised as a population that is especially at risk to environmental issues because of a number of physiological, psychological and socio-economic factors that contribute to this susceptibility (Gamble et al., 2013:15). These factors include the generally higher frequency of certain diseases, medical conditions and functional limitations; their higher sensitivity to extreme heat; their increased social isolation and their financial status (Gamble et al., 2013:15). Office of the High Commissioner for Human Rights (2021) argues that in addition to children, women and older people, people with disabilities are arguably the most vulnerable group to the impact of environmental issues. Walker (2013:2) asserts that people with disabilities are more likely than others to be left behind or abandoned during evacuation procedures, have support networks disrupted, and experience discrimination and gaps in access to services and resources (Walker, 2013:2).

According to the 2nd Draft Long-Term Adaptation Scenarios Flagship Research Programme for South Africa (South Africa. Department of Environmental Affairs, 2013:13), environmental issues are likely to heighten inequality, undermining social justice and cohesion as well as the livelihoods of marginalised communities. Thus, it is paramount for South Africa to implement effective adaptation approaches. There is urgency for the relevant stakeholders to fortify the resilience and adaptation of its

society and economy to land degradation and develop and implement policies, measures, mechanisms and infrastructure that protect and educate the most vulnerable communities (South Africa. Department of Environmental Affairs, 2013:13). Therefore, the mission ahead is to intensify the adaptive capacity of communities affected by land degradation through SLM practices.

3.5 LIVELIHOOD BENEFITS OF SUSTAINABLE LAND MANAGEMENT

Land management can have a negative and positive influence on communities' livelihoods. According to Kenea (2008:24), the development of sustainable livelihoods in communal areas is fundamentally influenced by how land is managed and used. This is because land is the primary resource from which communal people derive their livelihoods. It is the main source of food, income and other factors that people require for their livelihood support (Kenea, 2008:24). Therefore, land management protects the livelihood benefits that the community obtain from land. Gilling, Jones and Duncan (2001:305) state that the basis of the SLA is that the poor rely on a complex range of assets. The uneven distribution of access (influenced by institutions in power) to these assets creates a major impact on their livelihoods. This view is supported by Hawkins (2010:69), who asserts that it is the most disadvantaged and oppressed communities who often have the most degraded environments to dwell in, which can pose a detrimental effect on their social and economic development. The livelihoods of most rural poor communities in Ladybrand are dominated by agriculture, which places land as a central asset aiding to the livelihood and development of people.

Poor management of land as a natural capital threatens, and will continue to challenge, future global food and energy security, inhibit the possibilities to adapt to and mitigate climate change (UNCCD, 2017:29). SLM practices, combined with rehabilitation activities, can be an opportunity to create green jobs and enhance rural economic activity.

SLM can mitigate the livelihood vulnerability that is brought about by shocks such as land degradation through the introduction of cost-effective land use strategies (United Kingdom. DFID, 1999: Section 2:1). The aim of the SLA is to empower and support poor people to establish their assets; thus, land management helps farmers and land users in Ladybrand to conserve land as an essential asset for their livelihoods (United Kingdom. DFID 1999: Section 2:1). Several studies have affirmed the relationship

between land management and the livelihoods of poor communities. For instance, Kenea (2008:24) states that enhanced access to land has promoted social security and gender fairness in Ghana. Land reforms have prompted poverty reduction and economic growth in India and, in South Africa, land tenure insecurity has adversely influenced agricultural productivity. Thus, through land management, communities not only protect land as a natural resource, but people can also maximise on their economic capital through increased agricultural productivity that minimises food insecurity and poverty. SLM limits the disintegration of social capital. It also supports the sustenance of human capital for the optimum execution of livelihood strategies (United Kingdom. DFID, 1999: Section 2:3). Therefore, effective land management and better access to land can help break the downward cycle of poverty by enabling access to the basic assets required for livelihood development, particularly in poor communal areas (Kenea, 2008:24).

3.6 SUMMARY

The chapter discussed how SLA impacts the economic, environmental and social dimensions of sustainable development. SLA addresses land degradation as a shock and stress that threatens the livelihoods of small-scale farmers and land care workers. It assesses the assets (capitals) they have as tools that can be used to recover and adapt from these shocks and stresses, and it enhances their livelihood strategies. The premise is that the effectiveness of development activity can be improved through manageable assessment of poverty and its causes. SLA is aimed at poverty reduction and placing people at the centre of development. The DFID core SL principles indicate that poverty-focused development activity should be people-centred, responsive and participatory, multi-level, conducted in partnership, sustainable and dynamic. The SLA is shaped by three insights into poverty that is, there is no direct connection between economic growth and poverty reduction, it depends on how the poor people are able to maximise and take advantage of the economic opportunities available. Secondly, poverty does not only entail low income but also involves other aspects such as absence of social services, bad health, illiteracy and the level of vulnerability that poor people have. Finally, poor people are considered to be aware of what is best for them, therefore, there is significance in involving them in the planning and designing of policies and projects that are directed to improve their livelihoods.

The sustainable livelihoods framework is characterised by five components, namely the vulnerability context, livelihood assets, transforming structures and processes, livelihood strategies and livelihood outcomes. Vulnerability context is the external environment in which people live. The factors that make up the vulnerability context have a direct impact upon people's asset status and the livelihood options that are open to them. It is crucial to have an understanding of the local context in relation to the nature of local livelihoods available, that is, what livelihoods strategies do people use and what factors are inhibiting them from achieving their livelihood objectives. Vulnerability is characterised as an insecurity in the wellbeing of individuals, households and communities in the face of changes in their external environment which also entails changes in land composition due to land degradation. One feasible approach to address vulnerability context of small-scale farmers and land care workers is to ensure that important institutions and organisation are informed about the needs and context of the poor.

Livelihood assets entail human capital, financial capital, social capital, physical capital and natural capital. Transforming structures and processes are institutions, organisations, policies and legislation that guide livelihoods and influence access to different types of capital as well as how capitals are used. Transforming structures are considered to be the “hardware‟ or organisations that are responsible for designing and implementing legislation that impacts on livelihoods. These include both public and private sector structures. Therefore, change in livelihood outcomes is influenced by change in these structures. Thus, the opportunities presented to individuals are highly determined by the institutional environment in which they find themselves in. Transforming processing are there to facilitate the operations and interaction between individuals and structures. These include, policies, legislations, institutions, culture and power relations. Process are important to livelihood outcomes. They provide the enabling environment for people to transform one form of livelihood asset into another, influence interpersonal relations, thus, how people treat each other.

Livelihood strategies and outcome are generally the various activities and choices that people make in an endeavour to attain positive livelihood outcomes. Livelihood strategies are influenced to a greater extent by the assets that the people have access to, as well as the transforming structures and processes, which include the institutions, policies and laws that govern particular activities. Therefore, it is imperative for people

to have a wide range of livelihood strategies from which to choose from in order to reduce their vulnerability

In order for farmers and land care workers to improve their standard of living and manage livelihood threats, they need to widen their income-generating activities away from only crop and livestock production, which is identified as livelihood diversification. Diversification can be categorised in two forms, namely on-farm and non-farm diversification, undertaken to generate income additional to that of the main household agricultural activities. On-farm diversification involves maintenance of a widespread of crop and livestock production activities that interlink in various ways for example intercropping. Non-farm diversification include seeking for businesses or employment opportunities outside the conventional crop production and livestock farming. Livelihood diversification protects households from uncertainty and improves their capacity to adapt and adjust to shocks and stress. The availability of assets such as savings, land, labour, education, access to market or employment opportunities and other public goods is a crucial factor in ascertaining a household's capability to diversify

There are various factors that constrain small-scale farmers and land care workers' livelihood diversification activities. Some include institutional limitation, physical environment, time and skill. The process of diversifying livelihoods has both positive and negative impacts on people. Some of the positives of livelihood diversification include, risk reduction, higher income, asset improvement, environmental and gender benefits. The negatives include, income distribution, farm output, and adverse gender effects.

In South Africa, the NDP 2030 is instrumental in the realisation of small-scale agriculture and identification of important areas of growth which may ultimately influence the livelihoods of communities. In South Africa, the opportunities that small-scale farmers and land care workers have to achieve the sustainable livelihood outcomes they desire is to a greater extent influenced by the historical context of apartheid. Majority of people have been marginalised by the racial discrimination which was prevalent during the apartheid regime which now is influencing access to certain privileges such agricultural land to improve livelihood outcomes.

The implementation of SLM practices influences the livelihood outcomes of communities. Through land management, communities do not only protect land as a natural resource, but they can also maximise their economic capital through increased agricultural productivity which, in turn, minimises food insecurity and poverty.

CHAPTER 4

RESEARCH METHODOLOGY

4.1 INTRODUCTION

This chapter discusses the methodology that was used to contextualise the empirical research of the study. The chapter commences by outlining the study's qualitative research approach, research design, research methods, study population, sampling, data collection and data analysis procedures which were applied in conducting the study. In the next section, the researcher presents the trustworthiness of the data, followed by a discussion of the ethical considerations that guided the study. Next, the limitations of the study are outlined. The chapter ends with a summary.

4.2 QUALITATIVE RESEARCH APPROACH

A qualitative research approach was applied in this study. Fouché and Delport (2011:65) describe a qualitative approach as capturing the perceptions or experiences of research participants because it brings about an account of participants' meaning, experience or perceptions. Rubin and Babbie (2011:437) state that a qualitative study gives a comprehensive perspective on a phenomenon; it explores, describes and understands the perspective from participant's point of view. Thus, the qualitative approach is a known means of discovering and collecting substantial meaning in data collection (Kumar, 2014:14). The qualitative research approach permitted the researcher to detect issues from the perspective of the study participants and to understand the meanings and interpretations they attribute to behaviour, events or objects (Fouché & Schurink, 2011:308). The qualitative approach emphasises the description and narration of feelings, perceptions and experiences rather than their measurement. It therefore communicates findings in a descriptive and narrative rather than analytical manner (Kumar, 2014:14). Moreover, the qualitative approach adds richness and depth to the understanding of the experiences and perceptions of participants (Fouché & Delport, 2011:63). A qualitative research approach was applicable to the study in that it explored and described the perceptions of land care workers and small-scale farmers in Ladybrand about land degradation and how it influences their livelihoods. The research study thus had an exploratory and descriptive purpose.

An exploratory approach is prominently used to investigate a phenomenon that is relatively new or when the researcher has limited or no knowledge on the subject of the study (Babbie, 2004:87). No formal study has been undertaken with small-scale farmers and land care workers in Ladybrand on land degradation and how it impacts their livelihoods. An explorative approach answers the "What" question (Neuman, 2014:38), which in the case of the study was: "What contributes to land degradation in Ladybrand and what strategies are in place to mitigate land degradation in this area?" Descriptive research provides a picture of the specific details of people or of social activities and focuses on "how" and "who" questions (Neuman, 2014:39). In this study, the question was: "How does land degradation influence livelihoods of small-scale farmers and land care workers in Ladybrand?" Descriptive and exploratory research work together in practice as the two-folded research goals explored the little understood phenomenon of land degradation and how it influences the livelihood of small-scale farmers and land care workers.

In alignment with a qualitative research approach, the study utilised an interpretivist research paradigm. The philosophy of interpretivism is centred on the notion that the goal of social research is to develop an understanding of social life and to discover how people construct meaning in natural settings (Neuman, 2014:104). According to Rehman and Alharthi (2016:55), an interpretive research paradigm is concerned with the understanding of interpretations that individuals ascribe to the varying social phenomena with which they interact. This study was therefore aimed at obtaining the perceptions and interpretation of small-scale farmers and land care workers' experiences in Ladybrand with land degradation. Interpretive methodology requires that social phenomena be understood through the point of view of the participants rather than the researcher (Rehman & Alharthi, 2016:55), which was the case in the study.

4.3 RESEARCH TYPE

Social scientists are driven by the goal of understanding and applying knowledge; therefore, this study applied research. Applied research is aimed at finding solutions to real practical problems (Gooyert & Größler, 2018:576). However, basic and applied research are supplementary to one another, and the goals intersect in practice as theoretical findings carry a practical implication and

practical findings have theoretical implications (Fouché & De Vos, 2011:95). Applied research is important in ensuring that the outcomes of the study are used to improve service delivery and make an impact on a certain group or society (Fouché & De Vos, 2011:95). In the case of this applied study, it was envisaged that the study would contribute knowledge to understand how land degradation influences the sustainable livelihoods of the small-scale farmers and land care workers in Ladybrand. This would enable the researcher to propose solutions that could promote these communities' sustainable livelihoods as well as influence policy decisions on SLM. This outcome is in alignment with the United Nation 2030 Agenda (UN, 2015) adherence to integrate the social, economic and environmental dimensions of sustainable development. Neuman (2014:27) states that applied research shapes many decisions that might inform policy-making aimed at SLM.

4.4 RESEARCH DESIGN

According to Durrheim and Painter (2011:35), a research design is a comprehensive framework that gives direction and structure toward the research task to enable the researcher to make relevant conclusions. The study adopted a case study research design. Starman (2013:31) defines a case study as a general term for the exploration of an individual, group or phenomenon. In the case of the study, land degradation (phenomenon) and the perception of small-scale farmers and land care workers (as separate communities) in Ladybrand on how it influences their livelihoods. The case study design was applied, since the researcher sought to investigate issues affecting individuals in their real-life situations intensively with the aim of generalising the findings (May, 2011:221).

More specifically, an instrumental case study was utilised for the study. According to Baxter and Jack (2008:549), an instrumental case study provides understanding of a phenomenon and clarifies theoretical and practical strategies to address the situation. An instrumental case study was fitting for the study since it aimed to explore in-depth the perceptions of small-scale farmers and land care workers on land degradation and how it influences livelihoods (Fouché & Schurink, 2011:321). An instrumental case study consists of an exploration of a single case with the aim of obtaining new knowledge that may be utilised to inform policies or other relevant developmental initiatives (Fouché & Schurink, 2011:321). In the case of this study, it could promote

SLM practices and community sustainability. Furthermore, the research design was a suitable choice for the study because land degradation influences the wellbeing of communities. It is therefore a phenomenon that needs to be looked at in depth, scrutinising its contexts and its causes, effects and influence on community sustainable livelihoods. The advantages of the instrumental design are its strength in obtaining detailed and relevant data and it allows the researcher to retain a holistic view of real-life events such as land degradation and how it influences livelihoods (Krusenvik, 2016:5). However, the main disadvantage of the instrumental case study is that it is much more demanding and it is very difficult to generalise its findings (Kumar, 2014:155).

4.5 RESEARCH METHODS

This section presents a detailed explanation of the research methods that were used for the study, focusing on the study population and sampling, data collection, data analysis, data quality and pilot study.

4.5.1 Study population and sampling

Population is described as the total number of specific elements in the field of the study with which the research problem is concerned or the wide pool of cases or elements that constitute the focus of a scientific enquiry (Strydom, 2011a:223,224). The study contributes to the growing body of knowledge on land degradation and community sustainable livelihoods. It engaged men and women who live within a similar socio-economic context are were exercising some form of land use. The population of the study consisted of small-scale farmers and land care workers in Ladybrand. The small-scale farmers group was made up of general small-scale farmers and commonage small-scale farmers. The two groups are both practising small-scale farming for both substantive and commercial use. However, the difference in their location of operation created a need to enquire their perceptions on land degradation and their sustainable livelihoods separately. There are increasingly calls for integrating scientific knowledge with the farmers' indigenous knowledge on the current land degradation indicators to develop suitable options for improving sustainable land use strategies (Muloo et al., 2019:3).

Land care workers were the other key population category in this study. The land care goals and objectives are to conserve and improve the ecological integrity of South African natural systems. The aim is further to develop the capacity and skills of land users through education, knowledge sharing, information, participatory interaction for better access and management of resources (LandCare South Africa, 1999).

Non-probability sampling was used for the study; thus, it did not guarantee the probability that possible participants in the population would stand a chance to be included in the study sample (Etikan & Bala, 2017:215). The researcher applied the purposive sampling method to select the sample as the study population was entirely based on the premise and judgment of the researcher. A sample was identified that constitutes the fundamental representative characteristics that meet the goal and objectives of the study (Babbie, 2010:193; Strydom, 2011:232). Purposive sampling was chosen, as it illustrated some features or processes that were of particular interest for the study, though it did not simply imply that any case may happen to have been selected for the study (Strydom & Delport, 2011:392). The sampling group consisted of 13 small-scale farmers and 14 land care workers who were considered for data collection to the point of data saturation; that is, a point where no new information is being provided (Dawson, 2009:54). Using gender as a criterion for inclusion in both sampling groups was important. As Reddy et al. (2015) state, gender perspectives on farming and land use (i.e. mitigation, adaptation, policy development, decision-making) are important to develop extensive human and social dimensions of farming systems and land use.

Small-scale farmers who were willing to participate in the study had to meet the following criteria:

- Has been farming as a smallholder farmer for at least two years;
- Has agriculture as their main livelihood strategy;
- Has access to any form of markets for the produce, either community, municipal, district or provincial market; and
- Has gender representation as far as possible.

Land care workers who were willing to participate in the study had to meet the following criteria:

- Must have been employed as a land care worker for at least one year;
- Must have a land care salary as one of their main livelihood strategies; and
- Must have gender representation as far as possible.

The researcher approached three gatekeepers of small-scale farmers and land care workers telephonically to inform them about the intended study in Ladybrand and that their permission would be required to conduct the study. They gave their support in principle, whereafter the researcher followed up with a written request. Permission for the study for the land care workers was granted by the Department of Agriculture and Rural Development of the Free State province (Appendix 7). For the commonage small-scale farmers, permission for the study was granted by the MAFA (Appendix 8) and for general small-scale farmers by the Assisi Mission Farm Fort Savage (Appendix 9). The respective gatekeepers, namely the chairman of MAFA, the secretary of land care committee and overseer of land care participants as well as the chairlady of Assisi Mission Farm Fort Savage provided entry to their department/organisation to get access to participants. After the gatekeepers had made their provisions for entry, dates for interviews were scheduled. Based on the criteria, the gatekeepers assisted with the selection of the participants and an interpreter. The interpreter was required to translate from English into Sesotho in order to mitigate the linguistic barrier between the researcher and some of the participants. The researcher requested for 10 small-scale farmers (five general and five commonage small-scale farmers) and 16 land care workers. However, of the 16 land care participants that were invited, 14 were involved in the study. In addition to the 10 small-scale farmers that were invited, three more wanted to participate, hence a total of 13 small-scale farmers participated in the study.

These groups of small-scale farmers were interviewed separately through focus group interviews. The initial focus group set consisted of two small-scale farmers groups. Firstly, five commonage small-scale farmers, followed by eight general small-scale farmers. Five general small-scale farmers had been invited, but the researcher recruited more participants to achieve data saturation. Land care workers were also subdivided in two groups.

4.5.2 Data collection

Data were collected through four focus group meetings for both study population groups. The data collection for small-scale farmers was initially planned to be collected through one-on-one interviews. However, on arrival of the research site, the one-on-one interviews had to be replaced with two focus groups interviews, one with general small-scale farmers and one with commonage small-scale farmers. This occurred as a result of several aspects that took place in the field. Before the commencement of data collection with the farmers, the researcher identified that there was limited time to conduct one-on-one interviews as the participants were only available for about 3 hours. Therefore, it was not going to be possible to facilitate 13 one-on-one interviews with a duration of 45–60 mins each within a period of 3 hours. This was further exacerbated by the fact that the data collection was delayed by the COVID-19 pandemic, which resulted in the study being almost one year behind the scheduled data collection time. Therefore, time was a top priority. Moreover, the assigned interpreter had limited time to be involved in all of the one-on-one interviews and the majority of the participants were not comfortable to articulate their perceptions in English. Therefore, the researcher adjusted the one-on-one interviews into focus group interviews as a practical endeavour to mitigate time constraints and involve all participants as well as the interpreter. Nonetheless, focus groups were the preferred data collection method for both land care workers and small-scale farmers.

At the start of the focus group, the researcher explained the study and informed consent forms were signed. The interpreter was able to translate the informed consent as well as the explanation of the study before the participants signed the informed consent. The focus groups were mostly conducted in English mixed with Sesotho, which was interpreted by one of the participants who had been selected to translate the study during the interviews. In order to be generally accessible, the interviews that were interpreted into Sesotho during the interviews were back-translated into English during transcription to ensure trustworthiness of the findings. The purpose of adopting focus group interviews was to allow the researcher to enter the participant's perspective (Merriam & Tisdell, 2016:108). The interviews were facilitated in the format of a semi-structured interview, an interview schedule (which is a more systematic and pre-planned method of interviewing) was used as a data collection tool, which was distributed to all the participants respectively (Rubin & Babbie, 2011:463). The study

had two interview schedules, one for both groups of small-scale farmers and one for land care workers (Appendixes 1 and 2). The interview schedules contained intentionally formulated open and closed-ended questions, which gave an outline of topics and issues that formed part of the study (Nieuwenhuis, 2016:93; Rubin & Babbie, 2011:463). Through the use of an interview schedule, an opportunity was created for conversational interviewing, and the participants' responses could be probed and clarified by the researcher whenever needed (Greeff, 2011:352; Nieuwenhuis, 2016c:93). The questions were divided into themes, namely the biographical information of participants, questions on land degradation and questions covering the sustainable livelihoods of participants.

The land care workers were divided into two focus groups. The initial plan was to divide them into three groups of 5 to 6 participants but 2 of the 16 participants who were expected to partake in the study did not show up and 3 participants came in late, leaving a total number of 14 land care participants. Therefore, the first focus group consisted of 5 participants and the second group had 9 participants as the 3 who came in late were then added to the second group. The first group had completed their discussion when they arrived. The two focus groups were created to provide equal opportunities for everyone to express their sentiments and to not compromise the quality of the data. Therefore, the researcher opted for two groups (Babbie, 2008:339).

The researcher had the opportunity to adjust the wording and question sequencing during the interviews in a manner that still allowed comprehensive and comparable data collection (Greeff, 2011:348). This ensured thick and rich data collection (Creswell, 2014:202; Wagner, Kawulich & Garner, 2012:88). The interview schedule assisted in establishing patterns in participants' knowledge, interpretations and attitudes to their perceptions of the topic of study. The researcher ensured the readiness of the room and that the facility was comfortable with non-threatening settings (Greeff, 2011:371). Health protocols relevant to Covid-19 were followed by exercising social distancing during the interviews, sanitising and ensuring that everyone had their mask on. The two focus groups were conducted at the Ladybrand municipality library and Manyatseng community hall and lasted 40 to 50 minutes per focus group interview. The length of the interview was influenced by the degree to which the participants shared their perceptions as well as the allocated time per interview. The researcher had to observe all participants' non-verbal cues attentively

as it enabled him to gain a broad understanding of the context contributing to the various participants' experiences (Creswell, 2014:18; Wagner et al., 2012:231). A reflection on the data collected during the interviews was included in the researcher's field notes (Schurink, Fouché & De Vos, 2011:406).

The researcher obtained permission from the participants to use an audio/digital recorder to record the interviews, which allowed for a richer recording than when only taking notes during the interviews (Greeff, 2011:359). Field notes of what went on during the interview were also taken. Upon finishing the interview, all information of what had transpired was then transcribed. This leveraged the interpretation and analysing of the acquired data (Babbie, 2007:309; Then, Rankin & Ali 2014:17). Away from the field, the collected data were arranged into different types, depending on the source of information (Creswell, 2014:151).

Focus groups are group interviews and serve as a method for information collection during qualitative research. This method is feasible to obtain a range of ideas and perceptions that participants have about an issue, product or service (Greeff, 2011:360). Focus groups are practical and work best when the group participants share particular traits that focus the discussion on a provided issue or topic, which in the case of the study was land degradation (Dilshad & Latif, 2013:192). Bless, Higson-Smith and Kagee (2006:123) explain that many African cultures make constant use of small groups to address concerns within their communities. The use of small groups elicits comfort and familiarity for participants to participate in the study's focus group. The researcher continued with the data collection process until data saturation had been reached where there were no new insights, themes and categories revealed through the interviewing process (Nieuwenhuis, 2016c:84). The researcher then started with the formal process of data analysis (Clarke, Braun, & Hayfield, 2015:229-330), which will be discussed in the following section.

4.5.3 Data analysis

Data analysis is the opportunity to make sense out of data by consolidating, reducing and interpreting what has been said (Merriam, 2009:176). In this study, the data analysis process was utilised to organise data in ways that allowed the researcher to identify themes, discover relationships of themes, develop explanations and generate theories (Wagner et al., 2012: 229). Thus, through data analysis, order, structure and

meaning of the collected data was accomplished (Schurink et al., 2011:397). Qualitative data analysis is characterised by a multitude of data analysis strategies (Creswell & Poth, 2018:154). The technique of data analysis that was applied in this study was thematic and the researcher applied the following steps of data analysis outlined by Creswell (2014:197) and supported by Creswell and Poth (2018:185). These steps are not necessarily linear, but can be interactive as the various stages are interrelated (Creswell, 2014:196).

The first task involved managing and organising the data for analysis. The researcher initially analysed the data in the field by capturing the physical setting of the interview as well as the surrounding environment, including the mood of the participants. Data were further analysed away from the field after the interviews had been conducted. The researcher transcribed the focus group interviews by typing the verbatim words used by participants in the four audio recordings. It was through the transcript of each interview that the researcher could gain insight into the participants' shared experiences and perceptions (Creswell & Poth, 2018:185). This process of data organising assisted the researcher to acquaint himself with the collected data.

The transcribed four focus group interviews were continuously read by the researcher in order to identify patterns that were relevant to the posed research question (Wagner et al., 2012:231). This assisted the researcher with developing codes. The researcher was able to make general sense of the overall meaning of the collected data (Creswell, 2014:97).

The next step required the researcher to group significant statements into units of information and themes, which involved reducing the data into small, manageable sets of themes and sub-themes for the final report (Creswell, 2014:199; Schurink et al., 2011:410). During this step, the researcher broke the collected data down into smaller parts while examining for similarities and differences. This step in the process of data collection enabled the researcher to identify themes and sub-themes to present the data in an organised manner.

The researcher went on to describe and classify the codes into themes, a process that Creswell and Poth (2018:189) consider the core of qualitative data analysis. The researcher structured comprehensive descriptions of the collected information by reducing the identified codes into themes and providing an interpretation of the data

in reference to literature perspectives and the researchers' own views. During this stage, the researcher identified initial counts of data codes that appear frequently in the database (Creswell, 2014:200). Themes were located and assigned initial codes in a first attempt to reduce the mass of data into categories (Clarke et al., 2015:245). The themes in this study are the major findings of the study. These findings represented the various perceptions of small-scale farmers and land care workers.

Advancing from this, the researcher developed and evaluated interpretations by dissecting the themes to obtain a broader meaning of the study findings (Creswell & Poth, 2018:195). The collected data were assessed by gaining some perspective and developing a larger opinion of the collected data. The researcher had to critically analyse the write-up and presentation of findings by giving verbatim examples from the study and link it with existing literature to create a meaningful whole (Clarke et al., 2015:243-244). It is through linking the analysed data with existing literature that it became evident how the study both corroborates with existing knowledge and brings new understanding to a body of knowledge, which will be the essence of the researcher's contribution to knowledge development (Nieuwenhuis, 2016: 120).

4.5.4 Trustworthiness of the qualitative findings

The trustworthiness of data in qualitative studies is achieved when the research findings accurately reflect the views of participants (Lincoln & Guba, cited by Leitz, Lunger & Furman, 2006:444). Trustworthiness of data is established through the use of credibility, transferability, dependability and conformability, which will be discussed next (Leitz et al., 2006:4440).

4.5.4.1 Credibility

Credibility refers to the extent to which a study's findings represent the meanings and perceptions of the research participants (Leitz & Zayas, 2010:191). The researcher increased credibility by informing participants that he would use recording devices and by being aware of the impact of research procedures on findings and possible bias on the research process. The researcher managed such bias by exercising reflexivity and seeking to establish self-awareness regarding his own influence on the research project (Leitz & Zayas, 2010:192). Triangulation was also used to achieve credibility of the research process. Triangulation is based on the standpoint that people learn

more by looking at reality from various viewpoints as opposed to looking from a single perspective (Neuman, 2014:166). In this regard, the study explored data from multiple theoretical viewpoints (Rule & John, 2011:109). The study extracted and enacted multiple theoretical perspectives from the SLA theory, the sustainable development theoretical framework and multiple policy and legislation frameworks. Member checking was also utilised to authenticate the findings; a few participants were selected immediately after the study, who indicated that their responses accurately presented their perceptions on land degradation and how it influences their livelihoods (Leitz & Zayas, 2010:193). They indicated that they were fine with not giving feedback on the transcribed findings. Thick description was pursued throughout the interviews by using audio-recording instruments and taking notes, as well as making use of probing to obtain more information on land degradation and how it influences livelihoods (Leitz & Zayas, 2010:194).

4.5.4.2 Transferability

According to Wagner et al. (2012:243), “transferability is the degree to which the results of qualitative research can be transferred to other contexts with other respondents; it is the interpretive equivalent of generalisability.” The study achieved transferability by yielding thick descriptions or detailed descriptive data on land degradation and sustainable livelihoods. The voice recordings of the focus group interviews, the verbatim transcriptions and the presentation of themes and participants’ narrative in Chapter 6 were some of the practical measures that the researcher implemented to ensure that the study provided thick descriptions. The premise of these techniques could improve other researchers’ ability to make comparisons with other contexts and to produce their conclusions based on the presented findings (Leedy & Ormrod, 2013:104). The themes that emerged from the findings are transferable to other similar settings to understand the influence of land degradation on livelihoods.

4.5.4.3 Dependability

Dependability is a reliability measure that evaluates whether the research process is logical, well-documented and audited (Schurink et al., 2011:420). The dependability of the study was indicated through a documented, reviewed, rationally conducted and presented research process (Maree, 2016:124). The researcher took all possible care

to account for all the changing conditions in the phenomenon chosen for the study, as well as the changes in the data collection method, to gain a refined understanding of the setting (Wagner et al., 2012:243). The researcher yielded dependability of the study through an audit trail within the research report that captures the process of data collection, analysis and interpretations. The triangulation of different categories of participants also ensured that the study achieve dependability (Creswell, 2009:190). Peer debriefing was also applied to achieve dependability. The researcher's contact and input from his research supervisor and co-supervisor allowed for peer debriefing. Research decisions and procedures could be discussed, and important feedback could be given that enhanced the quality of the research study (Schurink et al., 2011:420).

4.5.4.4 Confirmability

Wagner et al. (2012:243) define confirmability as "the degree to which the results of an inquiry could be confirmed or corroborated by other researchers". Confirmability is "concerned with establishing that data and interpretations of the findings are not figments of the inquirer's imagination but are clearly derived from the data" (Creswell, 2014:192). To achieve this, the researcher presented the process of data collection, data analysis and empirical findings, with the view of providing evidence that substantiates the findings and interpretations of the study (Schurink et al., 2011:421). The findings of the study were ultimately shaped by the participants and not the researcher's bias, motivation or interests.

4.5.5 Pilot study

A pilot study is a small-scale preliminary methodological assessment, directed to get ready for the actual study and is envisioned to ensure that the methods or ideas would be feasible in practice (Kim, 2010:193). Pilot studies are administered to establish a practical context for the proposed activity, which included identification of resources, the research population, procedures of data collection and data gathering (Strydom, 2011:237).

As indicated in section 5.5.2, the one-on-one semi-structured interviews with small-scale farmers were replaced with focus groups. The pilot study was administered with the first two focus group of the respective participant categories – one with

commonage small-scale farmers and one with land care workers. This was done to test the feasibility of the study, modify research instruments, frame questions, collect background information and adapt research procedures (Fouché & Delport, 2011:73). The pilot study enabled the researcher to determine the degree of openness of the participants and their keenness to engage with the study (Strydom, 2011:117). The pilot studies assisted in estimating the length of the planned focus group interviews (Strydom & Delport, 2011:395). The outcomes of the pilot studies were evaluated to determine the weaknesses and strengths of the investigation and to establish whether amendments were necessary to the research process and data collection method (Babbie & Mouton, 2011:191). No amendments were required and the proposed semi-structured interview schedule therefore remained unchanged. The first two focus group pilot interviews formed part of the data of the main study as provided for qualitative studies, and no variations were effected to the research procedure and interview schedule (Malmqvist, Hellberg, Möllås, Rose & Shevlin, 2019:3).

4.5.6 Ethical consideration

Research should be administered on the premise of mutual trust, acceptance, cooperation, agreements and expectations between the involved parties in a research project (Strydom, 2011:113). Ethics “implies preferences that influence behaviour in human relations, conforming to a code of principles, the rules of conduct, the responsibility of the researcher and the standards of a given profession” (Strydom, 2011:114). The study was ethically approved by the University of Pretoria (Appendix 6). The researcher adhered to the following ethical issues.

4.5.6.1 Informed consent

Strydom (2011b:117) states that it is unethical to embark on data gathering without the acknowledgement of the participants or the responsible authority. Moreover, it is important to inform participants fully and they should expressly state their intention to volunteer the necessary information (Strydom, 2011b:117). Researchers obtain informed consent from research participants by getting them to sign informed consent forms (Bryman, 2012:138). The interpreter signed an informed consent, agreeing to keep information shared by participants as confidential (Appendix 3). Participants were given all the information needed to make an informed decision about whether they wished to participate in the study (Bryman, 2012:138). The researcher carefully

explained the goal, objective, procedure of the study, the possible risks and benefits involved, their rights, and confidentiality and anonymity issues related to the research in clear manner. After the participants had voluntarily agreed to participate in the study, they were provided with the informed consent letter to sign (Appendixes 3-5). This contained all the information about the study and their participation.

4.5.6.2 Avoidance of harm and debriefing

Social researchers should never harm the participants being studied, neither physically, psychologically nor emotionally regardless of whether they volunteered for the study (Babbie, 2008:68). According to Fouka and Mantzorou (2011:5), the principle of avoiding harm entails the professional mandate to do effective and significant research to better serve and promote the welfare of the participants. This study intended to safeguard this ethical principle by strongly monitoring several aspects of harm in the study, such as loss of participants' self-esteem, stress and manipulating participants to perform some shameful acts (Bryman, 2012:135). The researcher was mindful that talking about livelihoods is a sensitive matter if threatened by land degradation. The researcher stipulated in the informed consent letter that there would be no intended harm and, in addition, before the commencement of the study, made sure that they had all the information on what to expect by participating in the research. This study did not subject the participants to any harm or pose unreasonable risks to the participants, but was conducted in line with the fundamental ethical obligation to protect the physical, psychological and emotional wellbeing of the participants (Neumann, 2011:146).

The participants were briefed on the research process and how the information they provided would be used in the research. They were assured that their interviews would remain confidential and that their identities would not be linked to the information they provided (Strydom, 2011b:122). The researcher had a debriefing session with the participants after the respective focus groups. The informed consent letter included the contact details of the researcher if the participants wished to follow up on any research aspects, or wanted to be referred to Equispectives Research and Consulting Services for an individual consultation session.

4.5.6.3 Voluntary participation

Creswell (2014:97) states that "participation should at all times be voluntary and no one should be forced to participate in a study". This research ensured that none of the participants were forced or obliged to form part of the study; participants took part at their own free will. Participation in the research study interrupted the farmers and land care workers from their daily agendas; therefore, as Babbie (2016:62) outlines, it was imperative for the researcher to ensure that the participants partake in the research voluntarily. The researcher explained the research procedures and other details relevant to the study, offering the participants the choice to decide whether they wanted to participate in the study or not. The researcher also informed participants that they could withdraw from the study at any time without facing any consequences (Rubin & Babbie, 2011:77). According to Strydom (2011b:119), voluntary participation is critical in social research, as it ensures free will and places research responsibility on the participant as well.

4.5.6.4 Respect anonymity and confidentiality

Strydom (2011b:119) believes that confidentiality and non-violation of privacy should be maintained by ensuring that the participants remain anonymous. The most notable way to deal with the protection of the participants' interest and wellbeing is the protection of the participants' identity (Babbie, 2016:65). The researcher ensured that no response would be traced back to any particular participant by being sensitive to the context and information provided in a participant's response. The informed consent letter indicated that information would be kept confidential and used only for research purposes. Furthermore, the recordings, transcriptions and informed consent letters will be archived by the Department of Social Work and Criminology for 15 years in accordance with the University of Pretoria's policy. Should they are used again, it will be for research purposes only, as was stipulated in the informed consent letter.

4.5.6.5 Actions and competence of the researcher

The researcher ensured that his actions were guided by the relevant ethical consideration in that he exercised honesty, integrity and competency and conducted the study by applying the skills and knowledge that he acquired during his training as an expert qualified to conduct the research (Strydom, 2011b:123). The researcher was

the main instrument in data collection (Strydom, 2011b:123). Strydom (2011b:123) corroborates that “researchers are ethically obliged to ensure that they are competent and adequately skilled to undertake the proposed investigation”. The researcher was sufficiently skilled and competent to undertake the study. He had attended a module in research methodology, which provided him with the appropriate knowledge required to conduct research. In ensuring that the research was conducted in the most ethical manner and that the participants were treated in a respectful way, the researcher worked together with his supervisor and co-supervisor throughout the study (Strydom, 2011b:124).

4.5.6.6 Publication and dissemination of the findings

The research findings will be presented to the scholarly community in the form of a research report that will be submitted to the University of Pretoria, as well as a scientific journal article for possible publication and presentation of a paper(s) at a conference. The findings have been discussed in an honest manner without any data manipulation or misrepresentation. Therefore, none of the findings have been fabricated to endorse specific conclusions or to mislead readers (Leedy & Ormrod, 2010:103). The findings will also be made available to the gate keepers of the land care workers and small-scale farmers who participated in the study.

4.6 LIMITATIONS OF THE STUDY

Qualitative research studies cannot be generalised to a larger population but can serve as a basis for further exploration. In alignment with qualitative studies, the research findings are only representative of the perceptions of small-scale farmers and land care workers in relation to land degradation and sustainable livelihoods in the Ladybrand area. The researcher adjusted the one-on-one interviews as the initial data collection method with small-scale farmers to focus group interviews instead, which might have an impact on the trustworthiness of the data. It could have influenced the richness of the data as individuals in a focus group have less speaking time than in one-on-one interviews. Moreover, the trustworthiness of the findings could have been influenced by the notion that some participants would agree with the dominant voice in the room, even if their views differed. Other participants might have withheld voicing their opinions freely due to the fear of being criticised. That means the study findings might not fully reflect the personalised or honest opinions about their perceptions on

the topic of interest. The selected data collection method of face-to-face focus groups lacked anonymity, thus respondents did not fully disclose all information.

The effects of these limitations were mitigated by reviewing the findings until data saturation had been reached. This was done in an unbiased manner that accurately reflected the views of participants. Furthermore, this study was based on collecting data in participants' own words. The probability of some participants' providing biased input with the aim of presenting themselves in a manner that merely favoured their desired narrative could therefore not be excluded. In defence of this limitation, participants were informed that their responses would be recorded anonymously and would not be linked back to them.

Another challenge was the language barrier. The researcher had to rely on an interpreter to translate the informed consent and interview schedule for the participants to understand them, as some understood only African languages. Thus, another limitation is posed regarding translations of the informed consent form and the interview schedule as the researcher had limited control over the interpretation. The researcher could have limited any misinterpretations by having the interview schedules and informed consent letters translated in the local vernaculars. However, despite the language limitation, participants could provide valuable insight, enabling a better understanding of the research topic

4.7 SUMMARY

This chapter described the research methodology of the study. The research approach, sampling method, data collection, data quality, research pilot study and ethical issues related to the study were discussed. Lastly, the chapter reported on the limitations of the study. Chapter 5 presents the empirical findings from the study.

CHAPTER 5

EMPIRICAL STUDY AND FINDINGS

5.1 INTRODUCTION

The chapter presents the findings of the study on the perceptions of small-scale farmers and land care workers on land degradation and how it influences livelihoods in Ladybrand.

The study answered the following research question:

- What are the perceptions of small-scale farmers and land care workers about land degradation in Ladybrand and how it influences their livelihoods?

The following sub-questions informed the research question:

What contributes to land degradation in Ladybrand?

- In what way is land degradation influencing small-scale farmers and land care workers' livelihoods in Ladybrand?
- What strategies are in place to mitigate land degradation in Ladybrand?
- What strategies should be in place to mitigate land degradation for sustainable livelihood outcomes for small-scale farmers and land care workers in Ladybrand?

The findings of the study were yielded from four focus group interviews, with 27 participants in total. The focus groups consisted of semi-structured interviews with 14 land care participants (divided into two focus groups), 8 general small-scale farmers and 5 commonage farmers. The qualitative data were analysed by means of Creswell's (2014) thematic analysis process where the researcher coded the data and extracted themes from the participants.

The chapter starts with the presentation of the demographical information of the land care workers and small-scale farmers respectively, followed by a discussion of the empirical findings according to the themes and sub-themes that emerged from the data. The chapter ends with a summary.

5.2 DEMOGRAPHICAL PROFILE OF PARTICIPANTS

The purposive sample of 27 participants consisted of 13 small-scale farmers. Of these, 8 were general small-scale farmers and 5 were commonage small-scale farmers, and 14 land care workers.

Table 5.1 presents the demographic information of the small-scale farmers in the two participant categories of commonage and general small-scale farmers regarding gender, age group and years involved in small-scale farming. The general small-scale farmers were from the Driefontein Trust Farm, Bakenkop Farm, Tshalea Duma Farm, Heldemoed Farm and Assist Mission Farm. Codes were allocated to identify the participant categories and participants respectively.

Table 5.1: Demographic profile of small-scale farmers

Participants	Farm	Marital status	Gender	Age group	Years in farming
CSF-P1	Commonage	Married	Female	58+	2
CSF-P2	Commonage	Married	Female	48–52	9
CSF-P3	Commonage	Married	Female	58+	20
CSF-P4	Commonage	Married	Male	58+	12
CSF-P5	Commonage	Single	Female	58+	29
GSF-P1	Farm A	Married	Male	58+	10
GSF-P2	Farm A	Married	Male	58+	10
GSF-P3	Farm B	Married	Male	53–57	8
GSF-P4	Farm B	Married	Male	43–47	8
GSF-P5	Farm C	Married	Male	58+	12
GSF-P6	Farm C	Widowed	Male	58+	12
GSF-P7	Farm D	Married	Female	38–42	10
GSF-P8	Farm E	Single	Female	43–47	12

As Table 5.1 indicates, there was a fair gender distribution among small-scale farmer participants in the study, with 6 female and 7 male participants. However, the commonage small-scale farmers were dominated by female participants. This could be explained by the growing feminisation of agriculture, which has seen growth of women in small-scale farming as 70 percent of farming activities in Africa are undertaken by female farmers (Byamugisha, 2013:14). The ages of the small-scale farmer participants ranged from 43 years to 58+ years with most of the participants (8) being 58 and older. Most of the small-scale farmers have lived on the farm, practising small-scale agriculture for an average period of 10 years and longer. This could be influenced by limitations in young people's access to land, land concentration and land sales and allocations outside the kin group by older generations (White, 2012:15). Moreover, young people are increasingly seeking work in the cities, leaving agriculture to older generations (White, 2012:9). Most of the participants from the two sampling categories of small-scale farmers indicated that they were married.

The biographical information of land care workers pertaining to their gender, age group and years working in land care is indicated below in Table 5.2.

Table 5.2. Demographical information of land care workers

Participants	Gender	Marital status	Age group	Years working in land care
LCW-P1	Male	Married	33–37	10
LCW-P2	Female	Married	28–32	12
LCW-P3	Female	Single	28–32	1
LCW-P4	Female	Single	28–32	2
LCW-P5	Female	Single	33–37	9
LCW-P6	Female	Married	23–27	2
LCW-P7	Female	Married	33–37	3
LCW-P8	Female	Single	33–37	1
LCW-P9	Female	Single	28–32	3
LCW-P10	Female	Married	33–37	1
LCW-P11	Female	Single	28–32	1
LCW-P12	Male	Single	23–27	6 months

LCW-P13	Male	Single	33–37	9
LCW-P14	Male	Single	33–37	6 months

As displayed in Table 5.2, ten of the land care participants were females and four were males. This reflects how progressive certain gender roles have become, as women are now occupying more manual jobs in higher percentages than their male counterparts. As Dillip, Mboma, Greer and Lorenz (2018:2) state, more women in urban and rural areas are becoming involved in economic activities and going out to work to earn money. The involvement of women in land care is also supported by the notion that, in many developing countries, women have the primary responsibility for the growing, collecting, processing and storage of food (PricewaterhouseCoopers, 2008:14). They are also responsible for the use and management of other natural resources, such as water and land for family use (PricewaterhouseCoopers, 2008:14).

The ages of the participants ranged between 23 years to 37 years, with an average of 30 years. The involvement of younger generations in natural resource management has been classified to go a long way in reducing the current environmental impact and driving towards sustainable development (Mboringong & Angga, [sa]:2). Thus, land care is empowering the youth through creation of employment opportunities and access to resources. This will, in turn, help to alleviate poverty among the youth themselves as well as create the needed platform for them to apply their strengths and talents to the economic development process. Hereby, inclusive development and sustainable growth into the future will be ensured (Kidido & Lengoiboni, 2019:19). Majority of the participants highlighted that they were not married. The group had nine single participants and only five were married. The average of participants' years of working experiences in land care was about 4 years. Two participants had 12 years of working experience, one had 10 years, and two had 9 years, while ten participants had less than 5 years of working experience in land care. Although the two participants who had only 6 months of working experience did not meet the sampling criteria, they were included in the study as they indicated their availability to share their experiences during the recruitment process.

5.3 THEMES AND SUB-THEMES

Six themes and sub-themes emerged from the data on the perceptions of small-scale farmers and land care workers on land degradation and how it influences their social, economic and environmental livelihoods. Data from the small-scale farmers and land care workers presented similar themes and sub-themes. In the case where data were relevant to only one of the two participant categories, it will be indicated as such. The findings of the study will be supported by direct quotations from the participants, and literature will be integrated in the discussion of the findings where relevant.

Table 5.3 presents the themes and sub-themes that emerged from the data of this study.

Table 5.3: Themes and sub-themes of study

Themes	Sub-themes
Theme 1: Causes of land degradation	1.1 High volumes of invasive plants 1.2 Land pollution 1.3 Influence of land tenure systems 1.4 Overgrazing 1.5 Veld fires
Theme 2: Factors inhibiting sustainable land management	2.1 Inadequate funding and time for land care 2.2 Lack of appropriate farming equipment 2.3 Lack of markets
Theme 3: Challenges faced by small-scale farmers and land care workers affecting their ability to manage the land	3.1 Inadequate snake awareness programmes and protective equipment 3.2 Illegal livestock grazing from outsiders 3.3 Access to capital 3.4 Poor infrastructure and logistics development 3.5 Water shortages
Theme 4: Current livelihood strategies	4.1 Selling livestock to abattoirs and villagers 4.2 Part-time work and informal trading

Theme 5: Supporting systems in meeting socio-economic and informational needs	5.1 Assistance from the government 5.2 Commercial farmers 5.3 Stokvels
Theme 6: Strategies to mitigate land degradation and secure sustainable livelihoods	

Theme 1: Causes of land degradation

The findings of the study reveal various causes of land degradation. These include high volumes of invasive plants in Ladybrand, land pollution, impacts of land tenure security, overgrazing and veld fires. These causes are discussed as sub-themes next.

Sub-theme 1.1: High volumes of invasive plants

The findings indicate high volumes of invasive plants, namely slangbos, inkberry and poplar tree, which contribute to the degradation of the land. The participants explained that invasive plants are growing rapidly in their farm area regardless of their efforts to control them. Consequently, the arable land is being reduced in size as invasive plants continue to invade and degrade a considerable portion of their arable land. The participants indicated that invasive plants absorb a lot of water from the ground, which reduces the quality of the soil and the quality of livestock forage due to insufficient water supply. The findings also show that some of the invasive plants may poison livestock and therefore reduce livestock production. This indicates how harmful certain invasive plants are to their livestock. Poor soil quality and livestock production threatens the livelihood of communities whose livelihood support is dependent on crop and livestock farming.

The impact of invasive plants on land is evident in the following views of participants:

GSF-P2: *We have a lot of them [invasive plants] at the farm. In as much as we would want to kill them, they just grow and grow. So, as a result, there is less land and a lot of invasive plants.*

LCW-P1: *Heavy rains contribute to land degradation and lowering of soil quality and invasive plants play a vital role.*

LCW-P1: *That's why sometimes if you put cows in that kind of land, they shrink because that grass does not absorb enough water because of this slangbos. When there is slangbos, the grass does not grow; it cannot be green.*

GSF-P4: *It's another problem in our farm; we have got another harmful plant called ink berry. It kills our cattle.*

GSF-P5: *It killed the cattle immediately. It's like they have eaten dung.*

LCW-P3: *Poplar tree drinks water … lots of water*

The findings reveal that farmers are losing a substantial section of their arable land due to the increased growth of alien invasive plants in their area. Landman (2017:1) notes that invasive alien plants negatively impact small-scale farmers by shrinking the arable rangelands and reducing the productivity of major grain foods such as maize. People living in developing countries are mostly affected by invasive alien species because the majority of the people are small-scale farmers and are almost completely reliant on arable farming land and natural resources for their survival, with invasive species causing additional threats to their nutrition and food security (Pratt, Constantine & Murphy, 2017:31).

It is indicated in the findings that invasive plants draw up more water from the ground; as a result, it affects soil quality and livestock production. This finding corroborates the view of Chamier, Schachtschneider, Le Maitre, Ashton and Van Wilgen (2012:345) that alien invasive species upsurge above-ground biomass and water loss through evapotranspiration. As a result, it reduces both surface water run-off and groundwater recharge, leaving the land dry and susceptible to degradation. Some of these invasive alien plants, such as the poplar tree as highlighted by the participants, modify the quantity, quality and timing of water flows by using more water than the plants they displace (Preston, Le Maitre, Blignaut, Louw & Palmer, 2018:719). This also affects the productivity of livestock by reducing the livestock forage. One of the prominent

invasive plants in Ladybrand is slangbos. Slangbos (Seriphium plumosum) is a shrub indigenous to South Africa, which has inhabited substantial parts of the semi-arid grasslands of the country (Du Toit, Cronje & Trollope, 2013). Slangbos is highly unpalatable to livestock.

Invasive alien plants also threaten livestock production and grazing pastures as some can be poisonous to livestock. Thus, it may either be poisonous or unpalatable to livestock or it may be edible but provide less or poor-quality forage compared to other forage species (Bufebo & Elias, 2018:28). The ink berry is an invasive plant which participants identified as being notoriously poisonous to their livestock. It is a declared weed in South Africa. The plant must be controlled or removed where possible. It is highly toxic to livestock, causing liver damage to cattle, sheep, goats and bison, which can result in death (United States. Department of Agriculture, 2013:2).

Lesoli, Gyasheka, Solomon, and Moyo (2013:272) argue that invasive species lessen the functional capacity of rangeland ecosystems in terms of support for livestock and wildlife. According to Clusella-Trullas and Garcia (2017:2), alien plants are known to directly or indirectly influence food resources for livestock communities. For instance, alterations in the composition of invasive plants will influence the livestock by directly bringing down the amount or quality of forage available. Therefore, the presence of invasive plants in rangelands leads to large-scale economic fatalities for small-scale livestock farmers by lessening the level of animal productivity (Bufebo & Elias, 2018:28). These plants impact the productivity of the livestock industry by reducing the yields and quality of livestock feed, interfering with grazing, poisoning animals, increasing the costs related to the production of livestock and diminishing land value through land degradation (Landman, 2017:2).

The land care worker participants revealed that the presence of alien invasive plants creates employment for them through land management, which makes a significant contribution to their livelihoods. Therefore, the management of invasive plants is a primary source of employment for several community members in Ladybrand. However, the participants explained that the main challenge they experience in the management of invasive plants is inadequate time and funding to work on the land on a permanent or long-term basis. This finding impacts negatively on land care workers' livelihoods and the land as expressed in the following words:

LCW-P1: *It influences our way of living because … say the farmers stop this thing of taking out the slangbos, we are not getting any salary at the end of the month.*

LCW-P1: Yes, as land care workers, our methods and efforts … we can remove the slangbos so that the grass can grow well.

LCW-P3: *Less duration of time because they say we are going to work for only three months. As you see, maybe a site … needs more time.*

The findings show a direct link between the land care workers' livelihood, management of land and managing the volume of invasive alien plants in Ladybrand. The management of invasive alien plants in South Africa is modulated under national legislation that yields for the management and protection of national biodiversity, the conservation of important species and ecosystems and the sustainable utilisation of local ecological resources (Van Wilgen, 2018:13). The management of alien invasive species usually involves a combination of mechanical control, fire and biocontrol (Van Wilgen, Richardson & Higgins, 2001:3). The land care workers apply both mechanical and fire control elements to remove invasive plants in Ladybrand. This includes the physical felling or uprooting of plants and their removal from the site. This allows grass to grow and protect the land surface from degrading and provides livestock forage. This method of control is highly feasible in areas with low infestation; it creates employment and reduces poverty, and no contamination of water exists with herbicide (Hoare, 2016:24). However, this control method is mostly time-consuming, labour-intensive and therefore expensive, and could cause severe soil disturbance and erosion (Hoare, 2016:24). The expensiveness of this method has been a challenge for land care workers as they sometimes experience inadequate funding to fully execute their duties throughout the year, which in turn has an adverse influence on their livelihoods.

Policy on and management of invasive plants should differentiate the types of invasive plants and methods of control according to their cost and benefits as well as according to the numerous stakeholders who experience these effects (Shackleton, Shackleton & Kull, 2019:146).

Sub-theme 1.2: Land pollution

The findings indicate that one of the leading causes of land degradation in Ladybrand is land pollution. The participants pointed out that land pollution comes from waste dumping, including plastics and sewage water. The findings present that the municipality is not forthcoming with efforts to mitigate land pollution. Land pollution is also causing participants' land to shrink in size and their livestock is affected by consuming some of the dumped waste material, such as plastics and wires. The following quotes show participants' views on land pollution and land degradation, as well as the impact it has on animals:

LCW-P1: *On the farm where we are farming, we have a problem of pollution … Pollution, plastics, sewage water because the farm we rented is under a municipality control, but we have got it under a nine-year lease contract. We have this problem of land pollution, which is beyond our control. We have mentioned it to municipality but, unfortunately … they cannot answer to our problem. I think also we have land pollution. There is so much that we search here in Ladybrand, so that's the other factor of soil degradation.*

LCW-P3: *Also, too much dumping inside the location. Others are full and the municipality will tell they will take it. They are full at the end of the day; they go all over the land*.

CSF-P1: *Plastics, sewage they have no control over it …*

GSF-P1: *They gave us 366 hectares; due to pollution, it's no longer 366, it shrank terribly; hence, it affects our cattle. Our cattle eat plastics. Whenever we sell or slaughter it, in the belly they find plastics, that's the problem. And the water is polluted coming from the sewage and from the location and from the town here. They did not manage to … they are not prepared to see to it that they do not rig*.

GSF-P1: *Okay, I wanted to say that sometimes when they graze you find in the stomach a piece of wire or plastic, remember how … just because of pollution people just throw away. People throw away mattresses, they get degraded, and the wire comes out and they eat … some parts of the mattress come out and they eat*.

The findings present evidence on how land pollution is caused by poor management of waste products, dumping sites and sewage. According to the UNEP (2017:17), land pollution is largely an outcome of inappropriate solid waste management, littering, poor agricultural practices and mining. Mining pollutes the land by removing the topsoil, which forms the fertile layer of soil, or by leaving behind waste products and the chemicals used for the process (hazardous metals, such as mercury and arsenic). Mining also misuses the land through deforestation, land conversion and desertification. Land is also polluted by seepages from poorly managed landfills and unrestricted dumping of liquid and solid wasted from households, industrial plants, as well as organic compounds and pharmaceuticals (Sevasan, 2017:2; UNEP, 2017:17). Contaminants of land pollution easily degrade land, soils and ground water and are difficult to eradicate (UNEP, 2017:18).

As the findings indicate, land pollution has an adverse effect on humans, animals and other living organisms as well as the natural environment (Sevasan, 2017:3). The participants commented on how they have lost a considerable size of their land due to uncontrolled dumping of waste on their farmland and effects on their livestock. Ashraf, Maal and Yusoff (2014:13) affirm that the contamination of land may lead to reduced soil fertility and reduced vegetation cover. This causes soil erosion and leads to land degradation, reduced crop yields due to loss of soil and nutrients, and dangerous chemicals entering underground water and polluting drinking water sources. Therefore, land pollution affects the quality of the land, posing a threat to community livelihoods and crop and livestock production.

A report by the Department of Statistics South Africa (2018) corroborates the findings on land pollution in Ladybrand, indicating that 90 percent of an estimated 59 million tonnes of general waste produced in South Africa in 2011 ended up in landfills, while only 10 percent was recycled. Thus, there is an increased growth in solid waste, while there is a scarcity of appropriate land to dispose the waste. South Africa is therefore running out of space for waste disposal. Furthermore, considering the advantages and need for waste recycling, studies highlight that as little as 5.2 percent of households recycled waste in 2015 (Department of Statistics South Africa, 2018). In the same year, the Free State province had the third least percentage of households who sorted waste for recycling in the country, at 5.1 percent (Department of Statistics South Africa,

2018). Recycling offers benefits of conserving energy, saving natural resources, reducing land pollution and mitigating land degradation (Department of Statistics South Africa, 2018).

Sub-theme 1.3: Influence of land tenure systems

The findings indicate that the absence of land security influences small-scale farmers' efforts to implement SLM practices and to make improvements on their farmlands. This finding was well captured by a participant who is renting land in a commonage:

CSF-P1: *The land that you are renting, you don't know how much to put in because there is a time issue. If it's not your own, after some time then it will be taken away from you.*

CSF-P1: *The suggestion towards that one is right now. I think the time frame we have 10 years … uh … of renting period and that 10 years is not enough. If it could be increased, then we would be able to do improvements and then you know things like that. So that's a suggestion on how … what we think.*

Robinson et al. (2017:6) point out that tenure security has an impact on landholders' management decisions, which affect outcomes relating to conservation interests and their livelihoods. According to Moreda (2018:75), it has long been argued that lack of tenure security affects land degradation, as the likelihood that land users will invest in land conservation depends on their security of tenure. Therefore, the provision of the relevant legal and institutional measures which augment tenure security, such as government extending the tenure period of commonage small-scale farms, may alleviate the land degradation effects to a certain extent by encouraging land resource conservation and adaptation (Unruh, Akhobadze, Ibrahim, Karapinar, Kusum & Montoiro, 2019:20).

The Department Rural Development and Land Reform (South Africa, 2010) passed the Draft Land Tenure Security Bill. The Bill aims to provide protection to people who live and work on farms, to provide support systems to them for sustainable livelihoods and to provide frameworks aimed at security of tenure.

Sub-theme 1.4: Overgrazing

One of the prominent drivers of land degradation identified by participants is overgrazing. Having too many cattle on the farm destroys the soil. Furthermore, the grazing of livestock is not well managed, and the farmers need the appropriate training and support to enact sustainable forms of grazing to reduce overgrazing.

CSF-P4: *There is too much cattle on our farm because it makes something like … overgrazing*

LCW-P1: *First and foremost, it's overgrazing … putting more cattle inside one camp is usually destroying that soil at the end of the day*.

CSF-P1: *You see, if you have enough land and you have training and support, then you are able to rotate your livestock. You put it … at one time you put them here then you leave the other area not being grazed. Then after some time you leave this one, you move them there. But then if you just have a piece of land, a small one, you have them there all the time … there is nowhere else*.

In alignment with the findings, Itzkin et al. (2021:17) state that overgrazing diminishes ground cover and increases soil erosion and gully formation, which drives land degradation. Land degradation reduces the livestock carrying capacity of the area due to the decrease in ground cover or livestock forage. This results in increased livestock deaths, thereby decreasing stock numbers and ultimately posing socio-economic constraints to small-scale farmers whose livelihoods are dependent on livestock production (Itzkin et al., 2021:17). Livestock and other natural resources are commonly identified to be significant components of rural livelihood strategies and provide an essential livelihood support for many rural poor, which keeps them from poverty (Vetter, 2013:2). In relation to overgrazing, the most fundamental feature that contributes to the decline of rangelands is the ineffective distribution of livestock on the grazing pastures (Czeglédi & Radácsi, 2005:29). The participants indicated that they need assistance to implement rotational grazing in their farms as a strategy to minimise overgrazing and land degradation. Ineffective distribution of livestock subsequently leads to over-usage of some parts of the land. Thus, areas that are overused often have most of the forage plants overgrazed. Czeglédi and Radácsi

(2005:29) note that implementing an efficient rotational grazing by livestock is a sustainable method for improving watershed conditions and reducing erosion on farmlands.

To support the contention on rotational grazing, Sato et al. (2019:2) assert that controlled grazing may assist restoration of degraded ecosystems by allowing the land to recuperate its cover without interference from the grazing livestock. Numerous management practices have been utilised successfully to develop grazing distribution. For example, water development, placement of salt and supplement, fertiliser application, fencing, burning and plantings of special forages can be used to enhance grazing by livestock in underutilised areas (Czeglédi & Radácsi, 2005:30). However, in Africa, an effort to improve livestock farming and the management of grazing land practices among communal and emerging farmers has failed (Allsop, Laurent, Debeaudon & Samuels, 2007). Agricultural support in South Africa is mainly intended for large-scale and commercial farming, offering little support to communal and/or small-scale farmers of crop or livestock (Vetter, 2013:2). Extension officers who are expected to provide training on grazing management are poorly trained and under-resourced, and the service they provide is largely in the form of top-down, singular provision of often unfitting information (Vetter, 2013:2). Rangelands or commons have been particularly neglected (Vetter, 2013:2).

Hall and Cousins (2013:12) indicate that fencing arable parts of land may be more cost-effective and more fitting than investing in fencing camps for livestock and can enable grazing land to be rested during the dry season. The fencing programme that forms part of the Comprehensive Rural Development Programme (CRDP) is thus a useful tool that could be put to good effect, enabling positive crop-livestock interactions and mitigating the effects of overgrazing on rangelands that contribute to land degradation (Hall & Cousins, 2013:12).

Sub-theme 1.4: Veld fires

The participants highlighted that veld fires are contributing to the high scale of land degradation in Ladybrand. Findings reveal that veld fires are destroying the quality of the soil due to smoke that enters the solar beam, which leads to high temperatures. Increased temperatures may cause vegetation cover to dry out at higher rates, thus

increasing the amount of vegetation that can potentially be ignited and, ultimately, more fires. Most of the veld fires start in towns located close to the farms, particularly during the winter season when community members light fires to keep themselves warm. The participants articulated the risks of veld fires as follows:

LCW-P1: *I can say veld fires, when fire burns, smoke goes out and goes down to the solar beam and it also destroys that soil, at the end of the day there is no protection. Maybe if you plant something it dies, maybe it may rain, and just that the weather is not right*.

GSF-P4*:* *We are going to have a problem of just like in this season of winter, we have a problem of veld fires*.

LCW-P4: *Veld fires also play a role there*.

Veld fires are a critical challenge because they occur frequently, causing loss of biodiversity, land degradation, food insecurity, loss of life, destruction of property and emission greenhouse gases that contribute global warming and climate change (Choga & Nyamadzawo, 2017:28). Participants highlighted that veld fires are damaging the quality of the soil. Kruger, Forsyth, Kruger, Slater, Maitre, and Matshate (2006:126) corroborates that veld fires reduce land cover, expose the land to agents of accelerated soil erosion and alterations in the hydrological cycle, increase surface run-off and modify various ecological processes. The removal of vegetation cover substantially leads to the reduction of the surface's capacity to infiltrate surface run-off after a precipitation event. Land degradation may be accelerated by veld fire activity when the area has already succumbed severe overgrazing (Strydom & Savage, 2016:2). Despite the endorsed acts that were aimed at preventing and mitigating veld fires, such as the National Veld and Forest Fire Act (101 of 1998), the Environmental Management Act (107 of 2007) and the Traditional Leaders Act (20 of 1998), veld fires remain a recurring challenge (Nyamadzawo, Gwenzi, Kanda, Kundhlande & Masona, 2013:66).

Theme 2: Factors inhibiting sustainable land management

The findings indicate a plethora of factors that are inhibiting the optimisation of SLM practices in Ladybrand. The factors include inadequate funding and time for land care,

lack of appropriate equipment and lack of markets. These factors are discussed as sub-themes next.

Sub-theme 2.1: Inadequate funding and time for land care workers

Insufficient funds and time are highlighted in the findings as some of the leading factors that limit SLM in Ladybrand. The findings indicate that there is not sufficient funding to employ land care workers for their land management duties. They work for only short periods of three months in the course of a year due to inadequate funding. They end up sitting at home with no employment, which influences both their livelihoods and the land for farming because no one will be tending to it. The cultivatable land for farmers is invaded by alien species, reducing the space for arable land to farm on as well as reducing livestock feeds. The influence of funding and time on SLM is captured by participants' responses:

LCW-P3: *Duration of funds … Less duration of time because they say we're going to work for only three months. As you see, maybe this site needs more time.*

LCW-P5: *Now we're sitting here at home because of money*.

LCW-P1: *We won't work, we will be seated at home, no job, no food, no income, no salary, no nothing. Especially on the farms, if it can stop meaning all the cows, the ships and all the stuff … where will they get grass because the whole place will be full of slangbos and the cow will shrink.*

LCW-P5: *The farmers will suffer if there is no one to remove the slangbos, because there will be no space for planting.*

The participants' feedback during the study substantiates findings reported by Paulus (2015:12) that financial constraints are one of the main factors that are hindering land users' adoption of land management practices. As highlighted by the participants, lack of financial investment in SLM leads to further land degradation and, eventually, to more poverty. Farmers are the mostly affected by the consequences of this downward spiral, which results in low crop yields, lack of food security, little surplus to sell on the open market and unemployment. These factors combined underpin land users' poverty and decrease their social stability (Breu et al., 2011:437). The ineffectiveness and absence of SLM practices might result in the land being invaded by alien plants, which reduce the size of arable land and the quantity of available livestock feed.

Nebere, Tolossa and Bantider (2021:2) highlight that SLM enhances livestock fodder, soil protection, increased fertility and biodiversity, as well as increased income and improved household nutrition. Nebere et al. (2021:3) corroborate that farmers or land users with access to credit or funding and savings associations have a considerable chance to adopt SLM practices.

Sub-theme 2.2 Lack of appropriate farming equipment

The findings present that absence of relevant equipment impedes the implementation of land management practices in Ladybrand. The participants indicated that they are unable to improve their farming activities due to lack of equipment such as tractors. The lack of relevant equipment has resulted in farmers' delaying their agricultural practices as they sometimes need to hire the equipment needed to sustainably prepare and manage the land. The findings also reveal that some farmers use fertiliser to maintain or restore the fertility of the soil. However, it is not readily accessible to them as it is expensive. To emphasise the issue of equipment on SLM, participants commented:

CSF-P1: *So, we … we are feeling the issue of … equipment we have been promised but nothing came so that what we are mentioning that we need that to improve our … our farming activities, if we can have those … it will be very helpful.*

GSF-P1: *Here, the problem of farming, we have enough land to grow crops but, most unfortunately, we don't have equipment … we have short of equipment we cannot farm, no tractors and all those things.*

CSF-P1: *If … you have your own equipment, you are able to do what needs to happen timeously. Now, the equipment you are renting the bigger farmers will do their land first. And then when they are done with their land, it's only then when they come to you. So, most of the time we are late in farming. So, our problem … will always be late because they come, they do their space then they come to ours later. So, if it's ours, we have control.*

GSF-P1: *If there is help it should be managed, we can say … yeah … we have donated tractors for all farmers in Ladybrand … somebody has to manage all that. If we can't then … it's subsidised … they can central all the equipment then we go there to collect it.*

LCW-P1: *… other farmers, they fertilise the soil if they recognise at a later stage, maybe because of the drought, then they recognise that the soil is weak and they put fertilisers just to make the soil fertile.*

GSF-P4: *But it's not only that fertiliser. Also seeds and chemicals, they are also expensive.*

The nature of equipment that farmers have at their disposal influences their decision to adopt and implement SLM practices. It is indicated in the findings that lack of equipment restricts farmers from improving their farming activities. Liniger et al. (2011:12) substantiate participants' views that land users may require specific inputs to apply SLM, such as appropriate equipment, seeds and fertilisers. Sims and Kienzle (2016:4) state that relevant agricultural equipment is an essential input not only for crop production, but it also has a critical role to play along the entire value chain. By introducing the appropriate equipment, value can be added to the whole process of agriculture. From planting to marketing and managing the land, higher value outputs can be attained. Rural employment can be created and sustained, post-harvest losses can be reduced, quality can be enhanced and small-scale farmers can be incorporated into the market economy competitively.

The findings reflect that participants experience low productivity and poor land management practices due to lack of access to equipment in spite of having enough land to grow their crop. Rapsomanikis (2015:1) corroborates the finding. The author state that for small-scale farmers to scale up their production level, apply SLM practices, meet the growing interest and increase profitability, they need to find ways to increase labour input or improve labour efficiency through mechanisation and other means. As reported in the findings, some farmers are considering other ways to access equipment. Among the possibilities is the sharing of equipment with other farmers by having a central location to access communal equipment, such as tractors (Rapsomanikis, 2015:25).

Theme 2.3: Lack of markets

The findings highlight that farmers are unable to implement SLM practices due to lack of access to markets. Access to markets allows farmers to have access to sustainable income that can be utilised to fund SLM measures. The absence of markets restricts farmers from selling their produce. Greater preference is given to the commercial

farmers, which leaves small-scale farmers stranded with no market for their yields. Participants expressed the challenges with access to markets as follows:

GSF-P4: … *and lots of ideas just like farming with … main problem is the market, our place … there is no market for our small farming*.

GSF-P1: *Yah, you know he says we can try to plant everything, you know, but where are we going to send our products? That's the problem, the commercials, they know where to send them.*

GSF-P1: *Market, yah … if we also indulge in vegetables, we plant cabbages, potatoes, carrots, where are we going to sell them because when we try to send it to the market they give preference to professionals, white farmers, who is going to take ours?*

The participants indicated that the poor access to markets poses a challenge for them to sell their produce, which has adverse consequences on their livelihoods. The Department of Agriculture, Forestry and Fisheries (South Africa, 2012:2) supports this finding, stating that the lack of reliable markets causes small-scale farmers to receive low prices for their products when selling it at their farm gate or local markets. The UN (2012:11) corroborates participants' views in a report on sustainable land use for the 21st century, stating that access to markets and information enables land users to make informed decisions. Myeni et al. (2019:2) concur that the presence of markets advances the farmers' access to information and technical details regarding SLM. A working paper series by National Agricultural Marketing Council (NAMC) (2016:2) states that access to markets encourages the efforts of farmers and may encourage them to increase production, thus contributing to household income and food security. It is broadly understood that small-scale farmers have restricted access to profitable markets due to several limitations. These include poor infrastructure, lack of technical support, lack of information (relating to markets, production, finance and environmental issues), low involvement in agricultural cooperatives and no record-keeping practices, among other limitations (NAMC, 2016:2).

It is highlighted in the findings that small-scale farmers are receiving limited preference from the available lucrative markets compared to the commercial farmers. Thus, the markets prefer to buy from commercial farmers instead of small-scale farmers. This finding aligns with the views of NAMC (2016:2) that small-scale farmers are prohibited from the most profitable channels, such as direct sales to supermarkets and exports,

primarily due to poor management skills, small quantities produced, low quality of the produce, poor or no storage facilities, little value addition to their products, transport constraints and ineffective dissemination of information. The poor access to markets for farmers influences not only their household food security but also the sustainability of their arable land due to lack of adequate funds to implement SLM measures.

Theme 3: Challenges faced by small-scale farmers and land care workers affecting their ability to manage the land

Small-scale farmers and land care workers face different challenges that restrict their ability to manage the land and mitigate or prevent land degradation in Ladybrand. Some of the factors, as indicated by the findings, include inadequate snake awareness programmes, illegal livestock grazing from outsiders on their land, poor infrastructure and logistics development, and water shortages. The following sub-themes capture the essence of these factors in detail.

Sub-theme 3.1: Inadequate snake awareness programmes and protective equipment

The participants are of the view that snakes form part of the ecosystem; therefore, there should be educational workshops to raise more awareness and knowledge about snakes and snake bites as an occupational hazard for land users. The findings also indicate that land care workers lack the protective equipment to deal with the snakes they face during land management. They need safety boots and snake gaiters for protection. Some of the snakes hide in the invasive alien plants, which makes it challenging for them to remove the alien plants safely without interfering with the snakes. However, some participants have indicated that working for land care has changed how they approach snakes as they now avoid killing the snakes because they understand their role as part of the ecosystem. The following comments capture the perceptions of the participants on snakes:

LCW-P1: *The negative side is that we are invading the snake's place.*

LCW-P5: *Safety boots and the guarders for snakes.*

LCW-P1: *I think, educational sort of workshops because we don't know a lot about snakes and they are part of our ecosystem. So, there must be some state awareness, so that we can learn more on how to interact with the snakes.*

LCW-P1: *They can feel that something is coming, but because they are the same with that slangbos, they hide themselves in that slangbos. So our equipment … I am sure it's 2 metres long, so when we take out that thing (slangbos), sometimes when you finish taking it out you see something is lying there, it comes straight inside that thing.*

LCW-P2: *I would like to add something … Before I became a land care worker … the snakes, it was something scary. So, when we find it in the field, we will kill it. So, in land care we practise that the snake mustn't be killed.*

The findings indicate that the need for protective equipment and awareness raising on how to sustainably interact with snakes is an important part of the ecosystem and optimising land care workers' efforts to manage the land. The land care participants noted that they sometimes invade snake habitats while they are preparing the land and removing invasive alien plants. This, therefore, restricts them from sustainably managing the land as they fear disturbing the snakes might endanger their lives. Participants indicated that educational workshops to raise awareness on how to interact with the snakes might complement the knowledge and understanding they already have about snakes. Karthick and Varalakshimi (2017:15976) corroborate this finding, noting that understanding awareness and perception in risk population on the preventive measure, first aid and treatment for snake bites becomes pivotal in designing snake bite prevention and control programmes to protect risk populations such as in the case of land care workers. Chisale (2007:2) asserts that, by understanding something about snakes' behaviours, simple precautions can be adopted to reduce the chance of encounters, contact and therefore bites.

The participants commented that they lack the protective equipment to handle snakes during their tasks of land management. Lack of protective equipment compromises their endeavour to effectively and efficiently manage the land. In support of this finding, Rogers (2003:453) notes that protective equipment is designed to prevent occupational exposure to hazards such as snakebites. The land care workers should have access to protective equipment at no cost, including correct sizes and type of equipment (boots, snake gaiters and hooks) that take allergic conditions that are caused by the equipment into consideration (Rogers, 2003:453). Personal protective equipment can be an effective control strategy only if appropriate and reliable equipment is provided and if employees consistently use it.

Sub-theme 3.2: Illegal livestock grazing from outsiders

Illegal livestock grazing from outsiders is presented in the findings as one of the prominent factors posing a challenge for the farmers and land care workers to manage their land sustainably and reduce land degradation. The participants indicated that people from neighbouring areas illegally bring livestock to graze on their farms and the law enforcement agents do nothing to address this issue. These findings are supported by the following views of participants:

GSF-P1: *Another problem is we are close to the locations … very much unfortunate … we have a problem, illegal grazing … people from the location are doing illegal grazing … and even if we report to the police, they do nothing about it.*

CSF-P1: *One of the challenges we have here is we are neighbouring to Lesotho. So, the Lesotho people come bring their stock here. At night, they cut our fences so there is no good control between us and them; so it's causing us a lot of problems, the Lesotho cattle, it's one of the problems we have.*

The illegal grazing that small-scale farmers experience on their land infringes their capacity to eradicate land degradation and causes more problems for them (see sub-theme 1:4). The findings are confirmed by Maduva (2014:32), who points out that illegal entry of livestock onto the communal land challenges the carrying capacity of the farm, which drives land degradation. Maduva (2014:32) further highlights that illegal livestock grazing also destroys the communal farmers' crops and grazing pastures, thereby endangering their livelihoods as residents. Livestock and crop production are the primary livelihood strategies that the participants have for their survival. Thus, illegal livestock grazing influences the outcomes that are provided by these livelihood strategies. As highlighted by the findings in sub-theme 1.4, participants experience overgrazing due to insufficient grazing land to distribute their livestock accordingly on a rotational grazing basis. Illegal livestock grazing further exacerbates the existing issue of insufficient grazing land, which influences the growth of their livestock. Odendaal (2011:5) argues that reduced grazing land due to illegal grazing has resulted in weaker livestock that develop at a slower rate and in small-scale farmers' incurring additional costs of buying fodder to supplement livestock's diet.

Sub-theme 3:3: Poor infrastructure and logistics development

Most participants indicated that poor infrastructure and logistics impede their effort to exercise SLM. They reported that it is a challenge for them to find vehicles to transport their livestock to the local abattoirs. The condition of the roads further aggravates the challenge to access sustainable transportation. There is also inadequate vehicle supply for firefighters' service delivery, which leaves the land users vulnerable in the case of veld fire eruption. The findings point out that the poor drainage infrastructure creates dry gullies that drive land degradation if it is not rehabilitated. The participants' views are expressed as follows:

GSF-P4: *Sometimes we do have our own transport but the problem is they don't have carriers and we will have to hire somewhere.*

GSF-P2: *The roads are bad. There are potholes everywhere, even at our place there are potholes. I can't even tell you how many tyres I had to buy. I think over R12,000 for tyres.*

GSF-P4: *Firefighter, yes, it's important … there is one and there is one vehicle and most of the times it's not working.*

GSF-P2: *So, as farmers, we gather and help each other to put out the fire.*

GSF-P1: *The drainage system is weak.*

LCW-P1: *The increasing of the running water, when you have a lot of heavy rains, it ends up making the dongas. That's when you find sometimes lot of water so it damages the soil.*

The participants' comments on the lack of reliable transport and condition of road infrastructure concur with Ngcobo (2012:46), who states that transport presents additional problems for the marketing of agricultural produce. Transporting produce to the market is challenging if there is no reliable transport available. Produce must be delivered as soon as possible after being harvested or when it is ready for sale to get the best prices. The absence of mechanical transport limits the majority of farmers to selling to their local communities and in the local town, and thus receiving lower selling prices in most instances. Poor infrastructure and logistics for small-scale farmers explain why they are restricted from accessing lucrative markets, as highlighted in sub-

theme 2.3. Umoren, Ikurekong, Emmanuel and Udida (2009:53) argue that road infrastructure is essential to enable easy transportation of agricultural produce from rural areas to the markets. The Global Mechanism of the UNCCD and Oxford Policy Management (2009:13) states that improved infrastructure may expedite access to wider national and international markets or to technical information and inputs, which may accelerate the adoption and implementation of SLM practices. Investment in infrastructure will have a positive implication on land use, particularly through transport, proper drainage facilities and roads; it will incentivise SLM (The Global Mechanism of the UNCCD and Oxford Policy Management, 2009:18).

Infrastructure development through an efficient road and transportation system may also lead to more reliable service delivery from firefighters, which may aid the community in abating veld fires that are grappling the land, as revealed by the findings in sub-theme 1:5. The findings also pointed out that poor drainage infrastructure is affecting participants' initiatives to land management, leading to more land degradation. Yarima, Sidi and Ismaila (2019:250) confirm the finding, arguing that poor drainage systems result in the distorting of the environment and to excessive soil erosion, which drives land degradation.

Sub-theme 3:4: Water shortages

Participants indicated that they have water shortages in the area and that they have notified the relevant stakeholders for assistance, but nothing has been done to address the issue. The water they have access to is polluted, which causes a problem for their livestock to consume. The participants requested the installation of a windmill to resolve the water shortages that they are facing. Below are some of the comments from participants on the shortages of water:

CSF-P4: *It was like something strong; they waste everything … sometimes, it's too dry, they promise to put water for our animals; just promises. They give to some few people, and some got nothing and the sad thing is poor people they can't get nothing but rich people they get, I don't [know] how Ntate is help like that because … we are poor.*

GSF-P6: *We also have a problem of water.*

GSF-P1: *And this water which is polluted causes many problems to our cattle and there comes … people can't see diseases from polluted water.*

GSF-P1: *Because they separated water, we don't have drinking water. If we have sort of like a windmill that produces water, it will help us a lot.*

GSF-P4: *Also to renew or maintain the ground water.*

Sadiki and Ncube (2020:325) note that water allocation in South Africa remains unequal, benefiting only those who have the ability and means to use water to produce the greatest economic returns such as commercial farmers, leaving small-scale farmers with little or no access to water for crop or livestock production. Participants expressed that they are not receiving any attention to resolve the challenge of water shortages. Sadiki and Ncube (2020:325) further confirm this finding, stating that water management is still a challenge throughout the country despite the existence of the all-inclusive policy and strategy instruments. There seems to be a deficiency of momentum in the application of water allocation reforms. As highlighted in the findings, water shortages are affecting livestock production through water pollution. Popoola, Monde and Yusuf (2019:53) note that scarcity of water resources and limited grazing lands are identified as pressing challenges faced by the livestock farmers. As a result of the drying up of available streams and rivers, livestock frequently drink from polluted water, a potential source of water-borne diseases.

Theme 4: Current livelihood strategies

Small-scale farmers and land care workers adopt various strategies to support their livelihoods, which are influenced by land degradation. The findings reveal that participants resort to selling livestock to abattoirs and auctions and taking on part-time work in the community and informal trading as livelihood strategies to support their families. These livelihood strategies are discussed as sub-themes next.

Sub-theme 4:1: Selling livestock to abattoirs and villagers

Livestock farming is one of the leading financial avenues for small-scale farmers in Ladybrand. The findings indicate that selling livestock to abattoirs helps farmers to support their livelihood outcomes. Participants pointed out that the majority of the small-scale farmers are pensioners and that they sell their livestock to supplement the grant money that they receive from the government. The livestock is sold to other

villagers as well as to the abattoirs. Participants need to rent a vehicle to transport their animals to the market. The participants' views are captured below as follows:

CSF-P4: *We selling our animals.*

CSF-P1: *We sell some of the stock we have but there is also the issue, most of the people are pensioners or let me say some … some people are pensioners so they [receive] the social grant and very few people are working. They have somebody in the house who is working but those are very few. So, we are having most people who are pensioners and they depend on the grant; government grant and then they sell the stock, the livestock to supplement.*

CSF-P1: *There are too many sources. We sell in the village but also there are … there is this sparta where we can sell the livestock.*

CSF-P1: *We have to rent the vehicle to take them there.*

The findings that small-scale farmers in Ladybrand are selling their livestock as a livelihood strategy resonate with the views of Twine (2013:1), who postulates that communal areas pursue livestock farming as one of the various livelihood strategies aimed at establishing positive livelihood outcomes for communal households. Freeman, Kaitibie, Moyo and Perry (2008:14) corroborate that farmers mainly keep livestock as a safety net, where they sell it during times of difficulties. Livestock plays a significant role in managing risk. Thus, many farming households often sell livestock to meet emergency cash needs, such as purchasing food or meeting health expenses when shocks occur. As in the case of this study, Freeman et al. (2008:14) assert that income from livestock sales is an important component of household livelihood strategies.

To sell their livestock to the available abattoirs, farmers indicated they need to hire a vehicle to transport their livestock to the market. The absence of own transport is a challenge for small-scale farmers as they must incur extra costs to move their livestock, as discussed in sub-theme 3:3. Furthermore, poor access to markets intensifies the process for them to sell the livestock (see sub-theme 2:3). Musemwa et al. (2008:243) concur by stating that the absence of marketing and transport facilities imposes a crucial limitation on the marketing of livestock. Nearly all small-scale

farmers are situated in areas remote from prominent markets, which partly explains the poor livestock supplies to formal market outlets by small-scale farmers.

Sub-theme 4:2: Part-time work and informal trading

The findings from the study reveal that nearly all land care workers are involved in some form of informal employment and trading to optimise their livelihood outcomes, including plumbing, electrician, baking, building, painting, hairdressing and working in farms. The participants expressed their part-time work and informal trading activities as follows:

LCW-P7: *Plumber, electrician I do a lot of things.*

LCW-P2: *I also bake and sell.*

LCW-P1: *Specifically, I will speak about me. I will maybe sometimes catch some piece jobs, sometimes I go building, painting … sometimes it's plumbing, it's only the piece jobs.*

LCW-P6: *I work as a hairdresser … make weaves, sell to some other people here.*

LCW-P9: *I work in the farms, grow cabbage, vegetables.*

According to the findings, the participants have diversified their livelihood strategies to pursue informal trading and part-time work as strategies to stabilise their wellbeing. The findings resonate with the views of Perret, Anseeuw and Mathebula, (2005:9) that most rural households and individuals secure their livelihoods through several sources such as local craftwork, own labour (plumber, hairdresser), informal trading and transfers (grants and remittances). Rural non-farm income consists of all non-agricultural activities which generate income to rural households through either waged work or self-employment (Davis, 2004:3). This form of livelihood diversification is practised by land care workers by constructing a diverse portfolio of livelihood strategies to improve their standard of living and manage risk through part-time work and informal trade. Bauman and Sinha (2001:1) confirm the findings by stating that in order for livelihoods to be sustainable, in the context of rural people, a household should at any given moment pursue a diversity of livelihood strategies. This is achievable when people's assets or capitals are convertible and substitutable into financial capital (baking and selling the products) (Bauman & Sinha, 2001:1). In the

case of this study, participants convert the human capital that they have acquired through land care work to pursue informal trading as strategies to supplement their income and stabilise their wellbeing.

Theme 5: Support systems in meeting socio-economic and information needs

Participants indicated the various support systems that they have at their disposal to meet their economic and information needs in order to optimise their farming and land management practices. The support systems include the government, commercial farmers and stokvels. The systems all have varying roles but similar outcomes in some way. The ensuing sub-themes elaborate further on these systems.

Sub-theme 5:1: Assistance from the government

Several participants are of the view that they are not receiving adequate support from the government and its stakeholders to maximise their growth as small-scale farmers; nor are they managing their land in a sustainable manner. The participants voiced their concerns that the government as a transforming structure simply makes promises which they do not fulfil. Their livestock and agricultural produce are continuously affected as the government fails to meet its commitment to ensure that farmers have adequate water supply for both livestock and crop production. Furthermore, poor waste management by the municipality causes land pollution, which degrades the fertility of the land to produce quality yields. Although the government and municipality have been approached for assistance, findings indicate that nothing has been done to resolve the challenges that the small-scale farmers face. The following comments capture participants' perceptions on lack of assistance from the government:

CSF-P4: *Thank you, Ntate. I think it's … try to fix everything but we got nobody to help us, to train us and nobody ever gives us nothing and we ask for the government … They say they will give something but nobody ever comes back … They promise to put water for our animals … just promises. They give some few people and some got nothing and the sad thing is poor people can't get nothing but rich people they get, I don't [know] how Ntate is help like that because us we are poor … I don't know how government … will deal with that Ntate; poor people get nothing but rich they get.*

CSF-P1: *Because if you work hard the land is still sour … you are not going to get anything. But if you work smarter that means you line the land and then it will release*

the nutrients and then you have more production. That means the help that we can get from the government is the line … to line the land and then we also have to work the land ourselves.

GSF-P1: *Pollution, plastics, sewage water because the farm we rented is under a municipality control, but we have got it under a 9-year lease contract, and we have this problem of land pollution which is beyond our control. We have mentioned it to municipality but, unfortunately, we cannot … they cannot answer to our problem.*

GSF-P1: *The issue was sometimes government promises us something and they disappear.*

The participants' concern with the reluctance of the local government to address their challenges is consistent with the views of Aliber and Hall (2012:548), who posit that government attempts to support small-scale farmers have generally been costly and ineffective. They further argue that, although the budgetary distributions to the sector have increased remarkably over the last 15 years, the allocation and use of these resources are such that few farmers benefit and the overall impact is small. Baloyi (2010:32) states that the provision of services to the small-scale farming sector has generally been static in South Africa due to the incompetence of some service providers in dealing with small-scale farmers. The poor service delivery by the municipality in resolving land pollution and its effect on the size and quality of land and the production of livestock all influence the sustainability of small-scale farmers' livelihood outcomes (also see sub-theme 1.2).

In the context of the SLA, transformation of structures and institutions is important for sustainable development (United Kingdom. DFID, 1999). Therefore, the support of government is important for small-scale farmers to develop assets. Nyawo and Mubangizi (2021) assert that appropriate institutional support could help rectify the imbalance experienced by the small-scale farming sector. These imbalances relate to land pollution, effective institutional service delivery, market access and land expansion that caters for economically viable land for cultivation.

Participants indicated that they requested government assistance to line their land to allow the soil to release nutrients for agricultural production. The following participant describes the role and expectation of government on land preparation:

CSF-P1: *Government has a lot of land around Ladybrand; we are talking specifically about our area here. Around Ladybrand, there are government farms that are not being utilised; if government can increase the land for the commonage people that would help. Secondly, the same land to produce well, you need to manage it well in terms of one lining, making sure it's well lined so that the nutrients will be able to be [absorbed into the soil].*

Satgé (2020:15) confirms this finding, noting that government should make provisions to contract a service provider to undertake the land preparation (land lining) for small-scale farmers. This will serve as an effort to maximise land capacity and increase production for the small-scale farming sector. According to Mncina and Agholor (2021), access to agricultural support services and systems is essential for farmers to increase agricultural growth.

Instead of solely depending on the government, participants indicated that small-scale farmers must also make provisions for themselves. The following comment captures this view:

CSF-P1: … *then the management of it, the farmers need to also do their part by rotational cropping, making sure that they do good crop rotation … So those are some of the things that can be done and we are talking about things that can be done. Because we are saying the land ... there are farms around Ladybrand that are just idle.*

The need for small-scale farmers to also contribute to the management of their land is supported by Choruma and Odume (2019:3). Farmers are the central decision-makers in agricultural land management and, therefore, have an important role in the sustainable growth of their agricultural production. According to Sebola (2018:2), if provided with the needed support, small-scale farmers would be likely to succeed and potentially contribute to the success of agriculture and the economy in South Africa.

Sub-theme 5:2: Commercial farmers

It was made clear through the findings that small-scale farmers need the support from the commercial farmers to develop their farming practices and ensure growth. The participants revealed that they would like the professional commercial farmers to mentor them in their agricultural practice. Participants were of the view that

commercial farmers have the necessary means, information and advice to assist them to deliver quality harvests. The following comments reflect participants' sentiments on receiving guidance from commercial farmers:

GSF-P2: *I really rely on commercial farmers for information. Whether I need anything, I go to a commercial farmer. Whether you need information or advice …*

GSF-P1: *We are eight here … if somebody from some minister's office says look in Ladybrand, we have so many farmers, small farmers as we are, small farmers then one professional farmer in Ladybrand, we have people here … Please be a mentor to these five people; give us report about them, what they have done, are there any problems? Then we are going to give you a small subsidy; the minister says so ... How about that one?*

GSF-P1: *… professional farmers can produce quality. We can't produce quality because we don't have means to produce quality.*

The findings illustrate that small-scale farmers need support from commercial farmers through information, mentorship and other relevant means to optimise the quality of their agricultural production. The findings are corroborated by the Department of Agriculture, Forestry and Fisheries (South Africa, 2012:2), which accentuates that lack of production knowledge for small-scale farmers leads to lower quality in production. Mbagwu, Benson and Onuoha (2018:3) support the finding on the significance of information for farmers by arguing that information is becoming a fundamental input in agriculture to respond to opportunities that could improve agricultural productivity. The findings hinted on the imbalance of the quality of yields produced by the commercial farmers and those produced by small-scale farmers due to differences in access to the relevant resources. Zantsi, Cloete and Möhring (2021:23) purport that it is important to have insight in the productivity gap between commercial farmers and small-scale farmers because it can be used as a basis for determining the intensity of support needed to close this gap.

Sub-theme 5:3: Stokvels

The findings reveal that participants also secure support from the various community societies in which they are involved. It includes stokvels that women participate in as well as community funeral plans. One participant commented as follows:

CSF-P2: *As a woman, sometimes we think about small societies so that we can buy … this month we can give … the other month we give. Small society … They help us a lot.*

CSF-P2: *Yes … And funeral plans also.*

Bophela and Khumalo (2019:27) concur that participating in stokvels bears social and economic benefits directed at generating income, sustaining food security, facilitating social networks and reducing the exhaustion of a finite portfolio of assets. The finding also supports the argument by Matuku and Kaseke (2014:508) that women participate in stokvels because the majority of them are poor and unemployed, and it meets their basic needs.

Theme 6: Strategies to mitigate land degradation and secure sustainable livelihoods

The findings report various measures to mitigate land degradation as an endeavour to secure sustainable livelihoods of small-scale farmers and land care workers. Besides lack of funding (see theme 2) and water shortages (see theme 3), participants revealed that they can do their part to mitigate land degradation by practising crop rotation. Having their own farming equipment and facilitating educational workshops to improve how they interact with snakes as part of the ecosystem are also strategies that can be implemented to mitigate the scale of land degradation and attain sustainable livelihoods. The following comments capture the diverse strategies proposed by participants:

CSF-P1: *… The management of it, the farmers need to also do their part by rotational cropping, making sure that they do good crop rotation. So those are some of the things that can be done and we are talking about things that can be done. Because we are saying the land ... there are farms around Ladybrand that are just idle...*

CSF-P1: *If you have your own equipment, you are able to do what needs to happen timeously. The equipment you are renting … the bigger farmers will do their land first. And then when they are done with their land, it's only then when they come to you. So, most of the time we are late in farming. So, our problem … will always be late because they come, they do their space then they come to ours later. So, if it's ours, we have control.*

LCW-P1: *I think educational sort of workshops because we don't know a lot about snakes and they are part of our ecosystem. So, there must be some state awareness, so that we can learn more on how to interact with the snakes.*

Strategies to mitigate land degradation are embedded in the causes of the land degradation, as highlighted by the findings. Kenea (2008:24) points out that the development of sustainable livelihoods in farm communities is substantially influenced by how the land is managed and used. As the findings show, small-scale farmers aim to mitigate land degradation through crop rotation. Njaimwe (2010:18) affirms that linkages have been made between crop rotation and improving the quality of degraded soils. Shah et al. (2021:3) indicate that crop rotation is crucial not only for the development of crop production, but also for improving the quality of the soil by upgrading soil fertility, nutrient efficiency and preventing land degradation. Thus, the mitigation of land degradation through crop rotation minimises farmers' vulnerability context and helps secure positive livelihood outcomes due to an increase in crop productivity.

The findings indicate that access to necessary equipment will optimise the capacity of farmers to work on their farms and mitigate land degradation in time. The Food and Agriculture Organisation (2008:12) corroborates the finding, stating that if farmers are provided with access to the relevant farming equipment, several opportunities for land management can be exploited. These include conservation of sustainable agricultural practices such as crop rotation, reversing land degradation and increasing soil fertility. According to Rakodi (1999:326), investment in physical capital, such as production-related machinery, enables farmers to use appropriate inputs and mitigate land degradation timeously.

The introduction of educational programmes on snake awareness (also see sub-theme 3:1) as a strategy to mitigate land degradation is supported by Erickson et al. (2020). These authors posit that there is a dire need for substantial community engagement and informative workshops to raise awareness of land users' interaction with snakes. This need is in particularly relevant for vulnerable populations such as land care workers and small-scale farmers. The education workshops on snake awareness will contribute to human capital development. The DFID (United Kingdom, 1999) states that the accumulation of communities' human capital can be achieved

only if people themselves are willing and able to invest in their human capital by requesting and attending workshops on snake awareness programmes. Information that improves communities' efforts towards the mitigation of land degradation could play an important role in improving small-scale farmers and land care workers' livelihood strategies.

5.4 SUMMARY

This chapter provided an overview of the empirical findings of the study. Six themes were discussed in the presentation of the research findings. These include causes of land degradation; factors inhibiting SLM; challenges faced by small-scale farmers and land care workers that affect their ability to manage the land; current livelihood strategies; supporting systems in meeting socio-economic and informational needs; and strategies to mitigate land degradation for sustainable livelihoods. The key findings, conclusions and recommendations from the study will be discussed in Chapter 6.

CHAPTER 6

KEY FINDINGS, CONCLUSIONS AND RECOMMENDATIONS

6.1 INTRODUCTION

The chapter concludes the study by presenting the key findings, conclusions and recommendations. The chapter starts by discussing the extent to which the goal and objectives of the study have been accomplished. The subsequent section presents the key findings and conclusions of the study on the perceptions of small-scale farmers and land care workers on land degradation and how it influences their livelihoods. Finally, recommendations from the study are made, which include proposed strategies to mitigate land degradation and to promote land management practices for sustainable livelihood outcomes.

6.2 GOAL AND OBJECTIVES

The goal of the study was to explore and describe the perceptions of small-scale farmers and land care workers of land degradation in Ladybrand and how it influences their livelihoods.

The goal was achieved by means of the following objectives.

Objective 1: To conceptualise and contextualise land degradation in a sustainable livelihoods framework

The first objective of the study was addressed from a literature perspective in Chapter 2 (see sub-section 2.2 and 2.3), where the researcher conceptualised land degradation dynamics within a South African context, examining the interlinkages between land degradation and the livelihoods of small-scale farmers and land care workers. The causes and effects of land degradation were discussed as well as its implications for the sustainable livelihoods of communities (see sub-section 2.3 and 2.5).

Objective 2: To explore and describe what contributes to land degradation in Ladybrand

Objective 2 was realised from a literature perspective in Chapter 2 (see sub-section 2.3) and by means of empirical findings in Chapter 5 (see theme 1). The empirical

findings confirmed the literature findings on the causes of land degradation, namely population growth, accessibility to markets, roads and transport, poverty and overgrazing. The empirical findings added land pollution, invasive alien plants and veld fires as some of the prominent causes of land degradation in Ladybrand (see Chapter 5, sub-themes 1.1, 1.2 and 1.5). Land degradation adversely reduces soil nutrients, which in turn directly affects their fertility, productivity and overall soil quality. Soil fertility decline is directly linked to low productivity and food insecurity and is at the heart of rural poverty. The findings show participants' understanding of what contributes to the depletion of the quality of their land.

Objective 3: To explore and describe how land degradation influences livelihoods in Ladybrand

Objective 3 was addressed in Chapters 2 and 3. The literature review in Chapter 2 (see sub-section 2.2) discussed the influence of land degradation on livelihoods. Degradation of land undermines the livelihood benefits that the community obtain from the land through agriculture. The quality and the size of land is affected by land pollution and overgrazing, which leads to land degradation (see Chapter 3, sub-themes 1.2 and 1.3). Land degradation reduces the capacity of land as an essential asset for a sustainable livelihood, which in turn imposes on small-scale farmers and land care workers' wellbeing. The development of sustainable livelihoods in communal areas is fundamentally influenced by how land is managed and used. The process of land degradation has an impact on soil fertility, which is important to sustain their livelihoods through quality produce. Therefore, the loss of economic value of soil affects the social and economic wellbeing of the community.

Objective 4: To explore and describe strategies that are in place to mitigate land degradation in Ladybrand

Strategies to mitigate land degradation and factors that support sustainable land management practices were discussed from a literature perspective in Chapter 2 (see sub-section 2.5). The empirical findings in Chapter 5 (see theme 6) indicated that access to farming equipment, educational workshops on snake awareness and practising crop rotation are some of the crucial strategies in mitigating land degradation. The importance of managing the land and reducing land degradation to

protect livelihoods of land users was also discussed in the context of the theoretical framework of the study (see Chapter 3, sub-section 3.5).

Objective 5: To recommend strategies to mitigate land degradation for sustainable livelihood outcomes for small-scale farmers and land care workers in Ladybrand

Objective 5 is addressed in section 6.4 of this chapter. The strategies that the researcher recommends were informed by the empirical findings of the study, as were reported on in Chapter 5 (see themes 2, 3 and 6).

6.3 KEY FINDINGS

In this section, the key findings and conclusions are respectively presented. The key findings are presented under the following themes: causes and implications of land degradation; factors that withhold the optimisation of sustainable land management practices; implications of land degradation for sustainable livelihoods of small-scale farmers and land care workers; lack of support from government and its stakeholders, and strategies to mitigate land degradation and secure sustainable livelihoods.

Key finding on causes and implications of land degradation

The findings identified the causes of land degradation as a high volume of invasive plants, land pollution, overgrazing, veld fires and unsecure land tenure systems. These factors reduce the quality of the soil and remove vegetation cover, leaving the soil vulnerable to erosion and ultimately resulting in land degradation.

Some invasive plants absorb more water from the ground than the plants they displace, which affects the quality of crops and available livestock forage. Land pollution is a result of poor waste management by community members and municipal stakeholders. It adversely affects the fertility of the soil and reduces ground vegetation, which causes erosion. Solid or liquid materials from land pollution easily degrade the land, contaminate the water and influence livestock production as some of the materials, such as wires and plastics, are consumed by livestock. The absence of tenure security influences land users' investment in land conservation initiatives. Veld fires reduce the land cover, which in turn drives soil erosion and results in land degradation.

In conclusion, land degradation poses a serious threat to small-scale farmers' livelihoods. Land degradation influences a considerable portion of arable land and livestock grazing. Invasive plants decrease surface water run-off and the release of ground water, leaving the land dry and prone to degradation with implications for food and livestock production. Without owning land, small-scale farmers are less eager to invest in land management practices, which contributes to the cycle of land degradation and socio-economic challenges.

Key finding on factors that withhold the optimisation of sustainable land management practices

The findings pointed out various factors that hinder the optimisation of sustainable land management practices. The budget for land care workers is underfunded, which reduces the time they are employed (3 months annually) to assist with managing the land. Other factors include poor access to necessary equipment, inadequate snake awareness programmes and protective equipment, poor access to necessary equipment to farm with and lack of access to markets. Land care workers do not have boots, tongs and snake gaiters, which makes it challenging for them to prepare the land without interfering with the snakes. They also lack programmes that raise awareness on how they should interact and protect themselves from snakes. However, the land care programme has equipped them with knowledge to not see snakes as a threat, but as part of the ecosystem that should be protected. Small-scale farmers have limited access to markets that consider their products compared to commercial farmers.

In conclusion, three months per year are not sufficient to protect, rehabilitate and manage the land as well as facilitate the implementation of sustainable land management practices, such as the removal of alien invasive plants on farmlands. In addition, the lack of access to necessary farming equipment impedes small-scale farmers from improving their farming activities to secure a sustainable livelihood. Poor access to markets inhibits small-scale farmers to adopt SLM and reduce land degradation. Inadequate access to necessary equipment such as tractors, boots and snake gaiters leads to poor land management practices by land care workers and small-scale farmers. Inadequate snake awareness programmes and lack of protective equipment hinders land care workers to appropriately manage the land. The lack of

access to markets for small-scale farmers indicate that the development of small-scale farmers is not prioritised as compared to their commercial farmers' counterparts. Access to markets improves small-scale farmers' access to information and technologies regarding SLM.

Key findings on the implications of land degradation for sustainable livelihoods of small-scale farmers and land care workers

The findings noted that the causes of land degradation influence the livelihood of small-scale farmers and land care workers in Ladybrand. The presence of invasive alien plants reduces the size of arable land and grazing areas for livestock, and affects water supply for crop and livestock production. However, findings reveal that the presence of invasive plants has also created employment for land care workers through land management, which contributes to their livelihoods. Overgrazing of the land compromises the production of livestock. Land pollution affects livestock as the livestock gets exposed to plastics, wires and unclean water.

From the findings it can be **concluded** that the causes of land degradation influence the sustainable livelihood of small-scale farmers and land care workers. Invasive plants interfere with grazing forage for livestock and diminish land value through land degradation. This means that there is a decrease in crop and livestock production, which affects the livelihood outcomes of small-scale farmers who are reliant on agricultural production. However, while the livelihoods of small-scale farmers are affected by the presence of alien invasive plants, land care workers seem to benefit from it. The management of invasive plants creates employment for them, which contributes to sustaining their positive livelihood outcomes. Overgrazing hampers the production of livestock, which adversely influences the sustainability of small-scale farmers' livelihoods. Land pollution also affects the production of livestock, as well as the size and quality of arable land. Livestock that eat harmful material such as plastics and wires, as well as soil that loses its fertility due to land pollution, result in reduced crop yields and sub-standard livestock production, which pose a threat to small-scale farmers' livelihoods.

Key finding on lack of support from government and its stakeholders

The findings show that the government and its stakeholders are not adequately supporting small-scale farmers to improve their farming activities and manage their land in a sustainable manner. The government has failed to deliver on most of its promises to small-scale farmers in Ladybrand. However, the advantage is that small-scale farmers have developed resilience in supporting themselves without solely waiting on the assistance from the government.

The **conclusion** is that government has been neglecting small-scale farmers with poor allocation of resources and services. Livestock and agricultural yields are affected by inconsistent water supply, which the municipality in Ladybrand has failed to address. Access to agricultural support is important for the development of small-scale farmers. Lack thereof makes them vulnerable to various stresses and shocks such as land degradation, which affect their livelihood outcomes. However, it is important for small-scale farmers to independently take initiative to play a role in land management. The lack of capital, access to relevant equipment and markets should encourage small-scale farmers to play a part in SLM. Thus, the lack of the required government support prompts small-scale farmers to develop resilience, which contributes to increased production and more effective management of their land.

Key finding on strategies to mitigate land degradation and secure sustainable livelihoods

The findings indicate various strategies to mitigate land degradation and secure sustainable livelihoods for small-scale farmers and land care workers. They can mitigate land degradation through the adoption of crop rotation farming and rotational grazing. However, findings indicate that small-scale farmers need more land to implement rotational grazing. The findings also show that having own equipment and educational workshops on snake awareness are some of the strategies that can be enacted to empower land care workers to mitigate land degradation and secure their livelihoods.

In **conclusion**, rotating crops is helpful in long-term soil and land management; it increases crop productivity outcomes as well as securing livelihoods of small-scale crop farmers through improved yields. Rotational grazing accelerates the restoration or mitigation of degraded land by allowing the land to recover its vegetation cover with

minimum tampering from grazing livestock. However, the shortage of land in Ladybrand affects small-scale farmers' efforts to practise rotational grazing in a manner that promotes the mitigation of land degradation as well as supporting the security of their livelihood outcomes. Furthermore, adequate supply of necessary farming equipment enables small-scale farmers to explore several opportunities for land management. Educational workshops on snake awareness ensures that land care workers are knowledgeable and understand how to handle the snakes they encounter during land preparation. With this understanding and knowledge, they can execute their land management duties more effectively while contributing to conserving the ecosystem.

6.4 RECOMMENDATIONS

In view of the above-mentioned findings and conclusions, the researcher recommends the following strategies to mitigate land degradation for sustainable livelihood outcomes for small-scale farmers and land care workers in Ladybrand.

- **Increasing land care workers funding and duration of work**

Despite the success of land care, the land care programme faces challenges in securing funding, which impedes the capacity of their workers to effectively execute their duties. As alluded to in the key findings, within a space of 12 months a year, the workers work for only a limited duration of three months due to inadequate funding. Therefore, the Department of Agriculture, Land Reform and Rural Development must increase the budget to have land care workers on the ground for longer periods. More funding will enable the workers to work and manage the land for an extended period of time as they highlight in the findings that they sometimes need more time to work on a particular area. Longer working periods will reduce invasive alien plants, increase soil fertility and mitigate land degradation. Furthermore, increased funding will support not only the livelihoods of land care workers but also the livelihood outcomes of small-scale farmers as a result of improved land and soil fertility. This, in turn, will support the productivity of crop and livestock farming and promote more effective SLM practices.

- **Provision of tenure security**

The findings highlight that small-scale farmers are not applying optimum investments to improve the quality of their land and reduce land degradation due to the lack of tenure security. Therefore, the Department of Rural Development and Land Reform should facilitate a process for small-scale farmers to access the necessary legal and institutional measures that will enable tenure security, such as extending the tenure period of commonage small-scale farmers. This will give the farmers a sense of ownership and encourage them to adopt and invest in land management practices, which, in turn, will drive the mitigation and prevention of land degradation.

- **Promote rotational grazing**

Small-scale farmers should be trained to implement rotational grazing on their lands as a strategy to mitigate land degradation and secure sustainable livelihoods. This form of grazing protects the ground cover as specific areas of land are allowed to revitalise without being over utilised. Rotational grazing will also ensure that there is quality livestock available for farmers. Moreover, for rotational grazing to be successfully implemented, there is a need to expand the grazing land to which farmers have access, as limited availability of land has hampered efforts to effectively apply rotational grazing. In addition, instead of investing in paddocks for livestock, another cost-effective strategy is to install fencing on arable parts of land, which will enable grazing land to be rested during dry seasons and reduce the scale of land degradation in communal areas.

- **Increasing access to markets**

The findings disclose how important it is for small-scale farmers to have access to profitable markets. There is a need for markets that support small-scale farmers to sell of their produce. Access to markets improves profits and leads to the implementation of sustainable land management practices. It also ensures that small-scale farmers have access to the relevant market information that favours SLM. Small-scale farmers in Ladybrand do not belong to any association except for commonage farmers; thus, their initiatives to have access to markets is not backed by anyone other than themselves. It is recommended that the Department of Agriculture, Land Reform and Rural Development facilitate a process where small-scale farmers could engage in conversations on collaboration options, including farming associations and linking with

commercial farmers to mentor and support access to markets and farming equipment. A mutually agreed arrangement could benefit the entire farming community – small-scale and commercial farmers as well as land care workers – by strategically engaging them in land conservation to mitigate land degradation and improve crop and livestock production.

- **Promote institutional support to local small-scale farmers**

The government and its stakeholders have reluctantly neglected the provision of support and service delivery to small-scale farmers. Therefore, there is a substantial need for government support to small-scale farmers. The government as a transforming structure has an important role to support the development of small-scale farmers. Thus, relevant institutional support could help to resolve the disparities that small-scale farmers experience. These disparities include ineffective services delivery and poor access to markets and farming equipment. Thus, support to small-scale farmers should not only appear theoretically in policies and frameworks but also be identified in the development of the small-scale farming sector as well as through effective implementation of SLM strategies. Institutional support should include incentives for small-scale farmers' own land management initiatives, and mentorship of small-scale farmers by commercial farmers.

- **Snake awareness programmes and protective equipment**

It is significant to facilitate programmes that raise awareness about snakes to land care workers. By increasing awareness of snakes, risk populations such as land care workers are less exposed to this threat. In its budget, the Department of Agriculture, Land Reform and Rural Development must include providing land care workers with protective equipment such as boots and snake gaiters. Thus, the provision of snake awareness programmes and protective equipment will enable land care workers to perform their land management duties more effectively.

- **Further research**

Government should initiate a review of current policies that address and support small-scale farmers and recommend changes in policy. The aim is to ensure that small-scale farmers have access to the same developmental resources that commercial farmers

have, such as access to markets, farming equipment and funding to advance their efforts and understanding to apply SLM and mitigate land degradation.

Pilot collaboration initiatives between small-scale and commercial farmers in Ladybrand will improve land management practices and access to markets and farming equipment. Further research can be conducted on the strength and challenges of these collaborations for sustainable livelihood outcomes of small-scale farmers and land care workers.

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Appendix 1: Interview Schedule: Land care workers

Interview Schedule

Land care workers

Goal of the study:

To explore and describe the perceptions of communities (farmers, small-scale farmers, and land care workers) in Ladybrand about land degradation and how it influences livelihoods.

Focus group number: _____

Participant number: _____

Section A:

1. Sex

Male		Female		Other	

2. What is your marital status?

Single		Married		Divorced		Widowed		Live with partner	

3. Age group

18-22	23-27	28-32	33-37	38-42	43-47	48-52	53-57	58+

4. How long have you been working for land care South Africa? _____
5. Where area do you live? _____
6. How many people live in your household? _____
7. How many people contribute to the income of the household? _____

Section B: Questions on land degradation

1. What do you think contributes to land degradation and lowering of soil quality in Ladybrand?
2. Do you think your efforts and methods to take care of the land and protect the quality of the land and soil are working? Why do you say so?
3. In what way is land degradation influencing your way of living and livelihoods?

Section B: Questions on livelihoods

1. How does your land care work contribute to your own and family's income?
2. What role do you think land care workers play in protecting the land and soil in Ladybrand?
3. What do you think will be the consequences if land care workers are no longer employed in the area of Ladybrand? To what extent will the farmers in the area – commercial and small-scale farmers be affected?
4. What challenges are you experiencing as workers? What should be done to overcome these challenges?
5. How can the work that you do by taking out invasive plants such as slangbos, contribute to creating other income opportunities for you?
6. We have come to the end of the discussion, is there anything that anyone want to add that I might not have asked you that is relevant to my study?

Thank you for your participation

Appendix 2: Interview Schedule: Small-scale farmers

Semi-structure interview schedule

Small-scale farmers

Goal of the study:

To explore and describe the perceptions of communities (commercial farmers, small-scale farmers, and land care workers) in Ladybrand about land degradation and how it influences livelihoods.

Participant number: _____

Section A: Biographical Information

2. Sex

Male		Female		Other	

3. What is your marital status?

Single		Married		Divorced		Widowed		Live with partner	

4. Age group

18-22	23-27	28-32	33-37	38-42	43-47	48-52	53-57	58+

4. Do you own or rent land?

Own		Rent	

5. Where do you farm? _____
6. How many people live in your household? _____
7. How many people contribute to the income of the household? _____
8. How long have you been farming in this area? _____

Section B: Questions on land degradation

1. What do you think contributes to land degradation and soil quality in Ladybrand?

2. What do you do to manage the soil?
3. In what way is land degradation influencing your of way living and livelihoods?
4. What are you farming with?
5. If you farm with livestock / poultry – where to they graze?

Section C: Questions on livelihoods

1. How do you make a living as a small-scale farmer?
2. Is farming your only source of income?
3. How do you adjust your farming activities to ensure an income if you experience sudden changes in the land and / or soil for grazing and growing?
4. Where do you sell your agricultural / farming produce? How often do you sell?
5. What should be done to support small-scale farmers in Ladybrand to look after the land / soil to ensure it can produce a livelihood?
6. What are the challenges of small-scale farmers in Ladybrand?
7. We have come to the end of our interview. Is there anything that you want to add that you think may be of relevance to the study?

Thank you for your participation in the study.

Appendix 3: Informed Consent Letter: Interpreter

17/02/2021

Our Ref: Researcher
Alex Msipa
Tel: 0840769135
Email: Alexmsipa01@gmail.com

INFORMED CONSENT LETTER (INTERPRETER)

Introduction

You will be an interpreter in a research study to explore and describe the perceptions of small-scale farmers and land care workers' in Ladybrand about land degradation and how it influences livelihoods. The aim of this letter is to inform you what the study is about before you give consent to be an interpreter for the researcher. Your participation is based on your full understanding of the procedures detailed in this consent letter.

Title of the study: Small-scale farmers and land care workers' perceptions of land degradation and how it influences livelihoods: An explorative study in Ladybrand.

Goal of the study: To explore and describe the perceptions of small-scale farmers and land care workers' in Ladybrand about land degradation and how it influences livelihoods.

Procedure: The researcher requires your participation as an interpreter during one-to-one interviews and/or during focus groups with research participants who are not conversant with English, but Sesotho. The interview will approximately last between 30-45 minutes. With permission of the participants, the interview will be audio recorded. The audio recordings will

be transcribed for purposes of data analysis. Only the researcher and the study supervisor will have access to the audio recordings.

Risk and discomforts: There are no anticipated risk or discomfort associated with your participation in this study.

Benefits: Participants will not receive any incentives for being involved in the study. The study may benefit participants indirectly as the research findings are intended to contribute information that will be used to inform policies and developments aimed at sustainable land management and developments on small-scale farmers and land care workers' livelihoods.

Participants' rights: Participation in the study is voluntary and participants have the right to withdraw from the study at any time without any consequences. Participants have the right to refuse to answer any question that they do not wish to respond to.

Confidentiality: The records from this study will be kept confidential. No individual identities will be used in any reports or publications resulting from the study. Participants' responses will be presented in codes to ensure that no shared information can be traced back to any particular research participant. The research information and audio recordings will be kept in a password-protected computer which only the researcher will have access to. When the study has been completed, all the research information will be stored in a secure place by the University of Pretoria for a period of 15 years. If data is used again, it will only be for research purposes.

Access to researcher: If you have any questions about the study, please contact the researcher, Alex Msipa at 084 076 9135 or email him at: Alexmsipa01@gmail.com.

Access to researcher: If you have any questions about the study, please contact the researcher, Alex Msipa at 084 076 9135 or email him at: Alexmsipa01@gmail.com.

Consent Declaration

I, JOHN MALEFELSANE LEPELE, understand my rights as an interpreter, and I voluntarily consent to be an interpreter in this study and keep all information confidential. I understand what the study is about and how and why it is being conducted.

20-04-2021	LADYBRAND	
Date	Place	Participant's signature
20/04/2021	Ladybrand	
Date	Place	Researcher's signature

Appendix 4: Informed Consent Letter: Land care workers

14/02/2021

Researcher: Alex Msipa
Tel: 0840769135
Email: Alexmsipa01@gmail.com

LAND CARE WORKERS

INFORMED CONSENT TO PARTICIPATE IN A RESEARCH STUDY

Dear research participant,

I, Alex Msipa, invite you to a focus group discussion as part of my research study which I undertake as master's student at the University of Pretoria. This letter gives you information on how the study will be carried out and what your rights are as research participant.

Title of the study: Small-scale farmers and land care workers perceptions of land degradation and how it influences livelihoods: An explorative study in Ladybrand

Goal of the study: To explore and describe the perceptions of small-scale farmers and land care workers in Ladybrand about land degradation and how it influences their livelihoods.

Procedure: The researcher will use focus group discussions to collect data from participants. Three focus groups of five to six participants each will be interviewed for approximately 1 hour. The focus group session will be audio recorded with your permission. The tape recordings will

be transcribed for purposes of data analysis. Only the researcher and the study supervisor will have access to the audio recordings.

Risk and discomforts: There are no anticipated risk or discomfort associated with your participation in this study.

Benefits: Participants will not receive any incentives for being involved in the study. The study may benefit the participants indirectly as the research findings are intended to contribute information that will be used to inform policies and developments aimed at sustainable land management and developments on small-scale farmers and land care workers' livelihoods.

Participants' rights: Participation in the study is voluntary and participants have the right to withdraw from the study at any time without any consequences. Participants have the right to refuse to answer any question that they do not wish to respond to.

Confidentiality: The records from this study will be kept as confidential. No individual identities will be used in any reports or publications resulting from the study. Participants' responses will be presented in codes to ensure that no shared information can be traced back to any particular research participant. The research information and audio recordings will be kept in a password-protected computer which only the research will have access to. When the study has been completed, all the research information will be stored in a secure place by the University of Pretoria for a period of 15 years. If data is used again, it will only be for research purposes.

Access to the researcher: If you have any questions about the study, please contact the researcher, Alex Msipa by calling 084 076 9135 or email him at: Alexmsipa01@gmail.com

Consent Declaration

I, ……., understand my rights as a research participant, and I voluntarily consent to participate in this study. I understand what the study is about and how and why it is being conducted.

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Date	Place	Participant's signature
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Date	Place	Researcher's signature

Appendix 5: Informed Consent Letter: Small-scale farmers

UNIVERSITEIT VAN PRETORIA
UNIVERSITY OF PRETORIA
YUNIBESITHI YA PRETORIA

Humanities 100.
1919 - 2019
Department of Social Work & Criminology

14/02/2021

Researcher: Alex Msipa
Tel: 0840769135
Email: Alexmsipa01@gmail.com

SMALL-SCALE FARMERS

INFORMED CONSENT TO PARTICIPATE IN A RESEARCH STUDY

Dear research participant,

I, Alex Msipa, invite you to an interview as part of my research study which I undertake as master's student at the University of Pretoria. This letter gives you information on how the study will be carried out and what your rights are as research participant.

Title of the study: Small-scale farmers and land care workers' perceptions of land degradation and how it influences livelihoods: An explorative study in Ladybrand

Goal of the study: To explore and describe the perceptions of small-scale farmers and land care workers' in Ladybrand about land degradation and how it influences livelihoods.

Procedure: The researcher will use one-on-one interviews to collect data from participants. Each interview is expected to take approximately 30-45 minutes. With your permission, the interview will be audio recorded. The audio recordings will be transcribed for purposes of data analysis. Only the researcher and the study supervisor will have access to the audio recordings.

Risk and discomforts: There are no anticipated risk or discomfort associated with your participation in this study.

Benefits: Participants will not receive any incentives for being involved in the study. The study may benefit participants indirectly as the research findings are intended to contribute information that will be used to inform policies and developments aimed at sustainable land management and developments on small-scale farmers and land care workers' livelihoods.

Participants' rights: Participation in the study is voluntary and participants have the right to withdraw from the study at any time without any consequences. Participants have the right to refuse to answer any question that they do not wish to respond to.

Confidentiality: The records from this study will be kept confidential. No individual identities will be used in any reports or publications resulting from the study. Participants' responses will be presented in codes to ensure that no shared information can be traced back to any particular research participant. The research information and audio recordings will be kept in a password-protected computer which only the researcher will have access to. When the study has been completed, all the research information will be stored in a secure place by the University of Pretoria for a period of 15 years. If data is used again, it will only be for research purposes.

Access to researcher: If you have any questions about the study, please contact the researcher, Alex Msipa at 084 076 9135 or email him at: Alexmsipa01@gmail.com

Consent Declaration

I, ……., understand my rights as a research participant, and I voluntarily consent to participate in this study. I understand what the study is about and how and why it is being conducted.

----------	----------	----------
Date	Place	Participant's signature
----------	----------	----------
Date	Place	Researcher's signature

Appendix 6: Ethics Approval letter

UNIVERSITEIT VAN PRETORIA
UNIVERSITY OF PRETORIA
YUNIBESITHI YA PRETORIA

Faculty of Humanities
Fakulteit Geesteswetenskappe
Lefapha la Bomotho

Humanities 100. Since 1919

19 April 2021

Dear Mr A Mabunga Msipa

Project Title:	Small-scale farmers and land care workers' perceptions of land degradation and how it influences their livelihoods: An explorative study in Ladybrand
Researcher:	Mr A Mabunga Msipa
Supervisor(s):	Prof A Lombard
Department:	Social Work and Criminology
Reference number:	15308694 (HUM026/0221)
Degree:	Masters

I have pleasure in informing you that the above application was **approved** by the Research Ethics Committee on 19 April 2021. Data collection may therefore commence.

Please note that this approval is based on the assumption that the research will be carried out along the lines laid out in the proposal. Should the actual research depart significantly from the proposed research, it will be necessary to apply for a new research approval and ethical clearance.

We wish you success with the project.

Sincerely,

Prof Innocent Pikirayi
Deputy Dean: Postgraduate Studies and Research Ethics
Faculty of Humanities
UNIVERSITY OF PRETORIA
e-mail: PGHumanities@up.ac.za

Appendix 7: Permission to conduct research: Land care workers

LANDCARE SOUTH AFRICA

agriculture & rural development
Department of Agriculture and Rural Development
FREE STATE PROVINCE

Your Ref: Prof A Lombard
Tel: (012) -4202325
Email: antionette.lombard@up.ac.za

Ms Maki Ranthimo
8 Commando Street
Ladybrand
9745
Email: makzine@live.com

REQUEST FOR PERMISSION TO CONDUCT RESEARCH WITH LANDCARE PARTICIPANTS

I herewith acknowledge receipt of your email received last week 4th February 2021 for the above mentioned permission to conduct research with the LandCare Participants in regards with Mr. Alex Msipa qualitative study to collect data by means of focus group discussions with the LandCare participants' one-on-one interviews.

As the LandCare Participants Overseer, grant you the permission on the mentioned matter and Mr. Alex Msipa is more than welcome to come pay our participants a visit and conduct the interviews.

We looking forward for the visitation, and will be awaiting the date set for this meeting.

Regards

Maki Ranthimo

Appendix 8: Permission to conduct research: Commonage small scale farmers

Address: P.O Box 1012

Ladybrand 9745

E-mail: mafa.farmers@yahoo.com

Reg No:.....

Cell: 083 600 9566/ 078 799 3692

Mr Alex Msipa

PERMISSION LETTER

With reference to your previous emails I hereby kindly informing you that permission has been granted to you to go on with your research.

Hoping to hear from you soon.

Regards

Kalimo Mokatsanyane

Appendix 9: Permission to conduct research: Small scale farmers

FRANCISCAN SISTERS, P.O. BOX 1106
Ladybrand 9745, Rep. of South Africa
Tel: 0027 (0)51- 924 0096/ fax: 0027 (0)51—9242278
Cel: 078 208 1818
Email: valenone@gmail.com

10/02/2021

Dear Mr Msipa,

I received your message.

I grant you permission to proceed with your research and contact the small-scale farmers to participate in your study.
You are welcome to communicate with me all the time.

Best Regards
Sr Valentina