DEVELOPING SOCIAL INDICATORS FOR THE EVALUATION OF NATURAL RESOURCE MANAGEMENT PROGRAMMES USING A CAPABILITY APPROACH IN THE EASTERN CAPE, SOUTH AFRICA

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Abstract

The dissertation investigates how the capability approach can be used to develop social indicators for a natural resource management (NRM) programme. The study aimed to develop an understanding of what the beneficiaries of the programme value being and doing to guide the development of social indicators that will take into consideration their personal development aspirations. These valued beings and doings were then overlaid with the programme goals and objectives to identify and select the final indicators.

The study was situated in the Tsitsa catchment in the Eastern Cape, South Africa and was part of a natural resource management programme, focused on land restoration and avoided degradation. Methods used to collect data for this study and develop an understanding of what the residents' valued beings and doings were, included semi-structured interviews, workshops and document analysis. The research population was non-homogenous. I tried to include voices representing different prominent groups of land users in the study. This included established commercial farmers, emerging commercial farmers, commercial forestry, residents residing in communal areas and engaged with subsistence farming and residents from these communal areas who are now residing elsewhere but continue to have connections to the catchment. Understanding the voices of these different groups who reside in the catchment was important to develop an inclusive understanding of what residents of the catchment valued beings and doings were.

The research process was supported by participatory approaches. This process, and the lessons learnt during the research process, were valuable for the further development and implementation of the planned participatory monitoring evaluation reflection and learning (PMERL) framework. The research process involved learning from the research participants about their valued beings and doings and what was important for the programme implementers. Some of the research participants from the Rhodes University implementation team (RUIT) were also involved in selecting the indicators they thought the programme should monitor. Overall, using the capability approach helped me to gain insight and understanding with regard to what the valued beings and doings are for the residents of the catchment and what they would like development programmes, such as the Tsitsa Project, to address.

It was surprising to find many areas of overlap between the valued beings and doings of the different residents in the catchment, as well as the similarities between these and the goals and objectives of the Tsitsa Project. In conclusion, using the capability approach was useful to learn what was important for the residents of the catchment to help develop the social indicators but also to learn how to guide and steer participatory monitoring and evaluation processes in the future.

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Abbreviations and Acronyms

CoPs	Communities of Practice
CSES	Complex Social-ecological Systems
DEA	Department of Environmental Affairs
DEFF	Department of Environment, Forestry and Fisheries
ELRC	Environmental Learning Research Centre
EPWP	Expanded Public Works Programme
GDP	Gross Domestic Product
IWR	Institute for Water Research
M&E	Monitoring and Evaluation
MWP	Mzimvubu Water Project
NRM	Natural Resource Management
OECD	Organisation for Economic Co-operation and Development
PMERL	Participatory Monitoring, Evaluation, Reflection and Learning
RUIT	Rhodes University Implementation Team
SAM	Strategic Adaptive Management
UNDP	United Nations Development Programme
UWP	Umzimvubu Water Project

Chapter 1: Context of the Study

1.1 Introduction

This study aimed to investigate an alternative approach for developing social indicators for natural resource management (NRM) programmes. The approach steered away from the expert driven approaches to select indicators. With these approaches, experts often select indicators according to what they believe are important to monitor to evaluate whether a programme is on track to reach its intended goals and objectives. In my experience, social indicators for development programmes are often selected according to programme goals and objectives exclusively. These programme goals are often heavily influenced by funder goals and objectives. Such goals and objectives risk being removed from the localised felt needs of development beneficiaries. As someone who is trained as a person-centred social worker, I have always found this approach very problematic. For me, such an approach risks overlooking key experiences, perceptions, needs and desires of local people and what they want from development interventions. The capability approach, developed by Amartya Sen (1999, 2010, 2017), I believe, can help to address some of these challenges. For Sen (1999), it is important that when one measures the impact of development, one should look at what is important to the people whose development one wants to evaluate. One needs to understand what they value being and doing. Evaluating development should then evaluate whether the development intervention help people to attain more of these valued beings and doings. Developing social indicators that can monitor this was the focus of this study.

The study presented in this thesis thus used Sen's capability approach (Sen, 1999, 2010, 2017) to explore the development of more appropriate social indicators that can be used for the evaluations of NRM and broader sustainable development programmes. The study was based on the Tsitsa Project in the Tsitsa River catchment in the north eastern area of the Eastern Cape. The vision of the Tsitsa Project is to: "through applied research, support integrated landscape management that improves the sustainability of local people's livelihoods, fosters equity in access to ecosystem services and strives for more resilient social-ecological systems" (Fabricius, Biggs, & Powell, 2016, p. vi). This study aimed to develop social indicators for evaluating progress towards achieving this vision.

It is important to note that this study was not an evaluation of the Tsitsa Project. Though this study is not an evaluation, it is part of the evaluative process in that the findings of the thesis is used to "learn, improve, judge and inform" (Podems, 2019, p.3) decisions specifically related to the Tsitsa Project's evaluation process. The indicators will be used to collect data that can inform the Tsitsa Project whether the intervention is "moving towards or away from its intended results or simply standing still in its quest to achieve these results"(Podems, 2019, p. 181). The findings of this thesis will also be used to further refine the monitoring and evaluation plan and implement it in a manner that speaks to the valued beings and doings of the residents of the catchment. Though the study was not an evaluation and only consisted of a part of the work that is common in an evaluation process, namely developing social indicators, it does share some characteristics with an evaluation.

1) A systematic process was followed to gather evidence for what residents' valued beings and doings are and to determine what is important for the programme implementers.
2) The research made a value judgement on what indicators would be practical and useful to the programme implementers, yet speak to the valued beings and doings that were voiced by the residents of the catchment.
3) The study took into consideration the different political factors that influence the Tsitsa Project with regard to how knowledge should be generated to inform the indicators and how decisions should be made.

According to Podems, (2013), these are all characteristics of the evaluation process. With evaluations making a judgement call about what should inform decision making about the progress of lack thereof, it was important to look at what informs these decisions and value judgements. Using a theoretical basis, such as the capability approach, helped to inform how these value judgements are made. This guided my thinking and data collection approach. Without a theoretical compass one could risk ignoring or missing the voices of the residents. One can risk only focusing on what is important to programme staff or funders. Even when following a participatory approach one risks asking standard questions which can generate little more than responses of what programme beneficiaries think you want to hear in the hope that their answers will benefit them.

It is also worth noting, that despite the name 'Tsitsa Project', the Tsitsa Project takes on the form of a programme rather than a project. According to literature, a programme can be understood as a number of related projects managed in a coordinated manner to deliver outcomes that are beneficial. A project, on the other hand, has a defined start and finish with specific objectives. When these objectives are reached, the project is considered complete (CompTIA, 2006; Weaver, 2010).

The Tsitsa Project can be considered a programme because it involves various different projects. These projects include on-the-ground land rehabilitation and natural resource management projects, research projects, infrastructure development, and livelihoods projects. In this thesis, the terms Tsitsa Project and programme will be used interchangeably. In the next section, I will give a background to the history and context of the Tsitsa Project.

1.2 History and context of the Tsitsa Project

This study took place in a complex context featuring several conflicts. The Tsitsa Project is a 'layered' project, consisting of many different stakeholders. Developing social indicators for the Tsitsa Project required that I come to understand the different perspectives of the stakeholders. To understand the context of the Tsitsa catchment and the Tsitsa Project itself better, I start by positioning the Tsitsa Project in the next section.

1.2.1 Positioning the Tsitsa Project

The Tsitsa Project is a programme of the Department of Environment, Forestry and Fisheries: Natural Resource Management (DEFF: NRM) (at the time of inception of this study still known as the Department of Environmental Affairs or DEA). DEFF: NRM is also the funder for this study, and is interested in innovative approaches to monitoring and evaluation of development that foster greater learning and impact. The Tsitsa Project was launched in August 2014, then known as NLEIP or the Natabalanga and Lalini Ecological Infrastructure Project. The name changed to Tsitsa Project in 2018 due to low levels of traction in the catchment for the name NLEIP.

The purpose of the Tsitsa Project was to rehabilitate degraded land in the Tsitsa catchment and to improve land use and management practices that may impact on a proposed dam project from the Department of Water and Sanitation (DWS). The proposed Natabalanga and Lalini dams (see Figure 1.1) would be part of the Umzimvubu Water Project (UWP) aimed at securing water for the urban areas of Umthatha and Port Elizabeth (Fabricius et al., 2016). The Tsitsa Project has a somewhat complicated and unclear relationship with the UWP and DWS. A stakeholder analysis found "vastly varying perspectives of different stakeholders with regard to proposals, plans and activities for the study area" (Sisitka et al., 2016, p. 18).

As noted, the Tsitsa Project currently consists of a range of research and rehabilitation activities operated in collaboration with DEFF: NRM. The focus of the rehabilitation activities is to conserve the natural resources and ecosystem services in the Tsitsa River catchment. Natural resources are defined by the Organisation for Economic Co-operation and Development (OECD) as the natural assets or raw materials that occur in nature and can be used for economic production or consumption (OECD, 2005). Ecosystem services are the direct or indirect contributions of ecosystems to human well-being which support people's survival and quality of life directly or indirectly (BISE, n.d.). The rehabilitation activities aimed at conserving the natural resources and ecosystem services are undertaken by various government NRM entities including Expanded Public Works Programmes (EPWPs). The Rhodes Restoration Research Group (in the Department of Environmental Science, Rhodes University) was tasked with overseeing the Tsitsa Project. Other units at Rhodes University conducting research in the Tsitsa River catchment include Geography, the Institute for Water Research (IWR) and the Environmental Learning Research Centre (ELRC) where this study is situated. Studies from these various departments all aim to contribute to the overall vision of the Tsitsa Project. For example, the completed Green Village project in the Department of Geography and the IWR, aimed to improve "socio-economic conditions in the Tsitsa catchment … through landscape greening" (Rowntree, 2017). Other studies have focused on citizen technician-based sediment sampling (Bannatyne et al., 2017) and participatory governance (Wolff & Palmer, 2018). Walter Sisulu and Fort Hare Universities also conduct research in the catchment on soil erosion and conservation strategies (Mamera, 2017). The University of the Free State conducted research in the catchment on soil erosion (Du Plessis, 2018). The majority of the studies intended to inform natural resource management with the necessary "information, methods and toolkits to inform and enhance evidence-based decision making, and support for more effective ecosystem management interventions" (Fabricius et al., 2016, p. v), i.e. to ensure that the NRM practices implemented by agents such as Working for Wetlands, Working on Fire, Working for Forests and Working for Water, are based on sound scientific knowledge. On the social front, two stakeholder analyses were conducted by Sisitka et al. (2016) and Rivers, Burt, Ntshudu, Matati and Lunderstedt (2018), as well as participatory mapping exercises looking at natural resource problems (Lunderstedt et al., 2017). The study presented in this dissertation was the first to focus on broader valued beings and doings of the residents of the catchment in order to evaluate the Tsitsa Project, not only on NRM effectiveness, but also from the residents' perspective, and to enable the NRM programmes to work in a more informed manner with residents of the catchment.

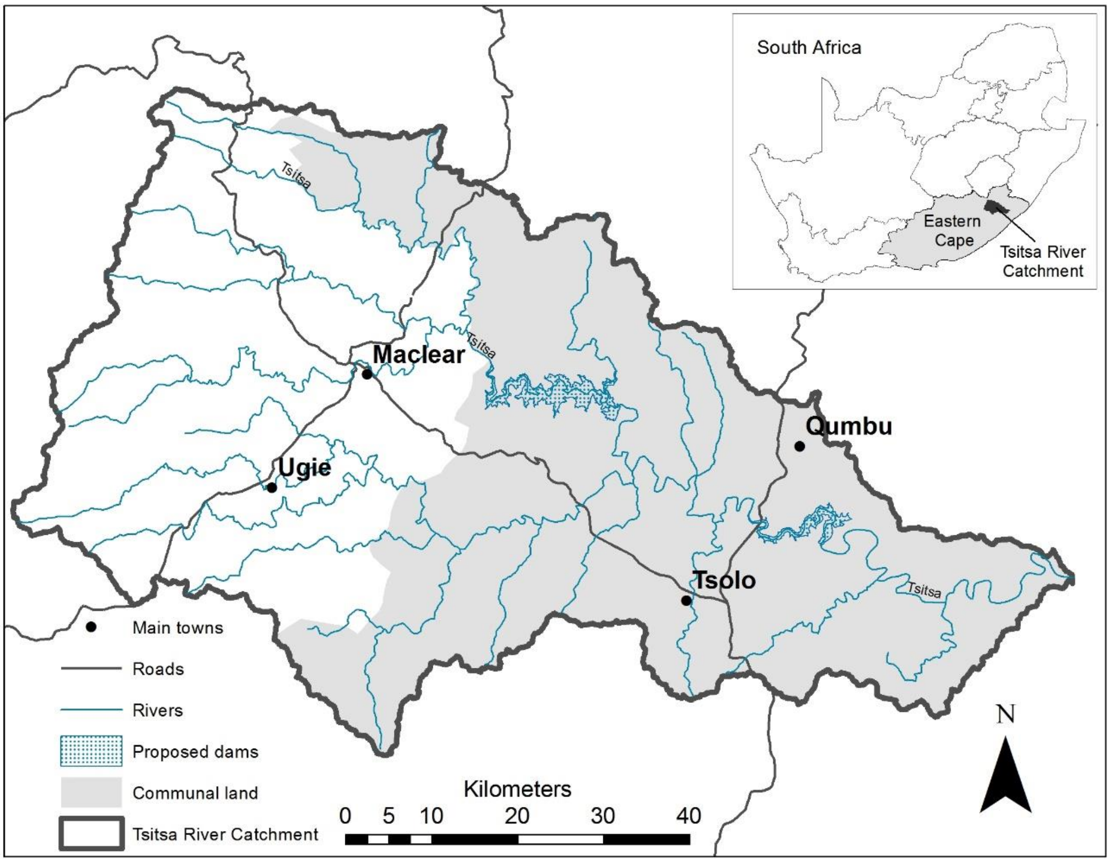


Figure 1.1: Map indicating the location of the proposed Natabalanga and Lalini dams in the UWP with the location of the Tsitsa River catchment

1.2.2 Organisational structure for the Tsitsa Project at Rhodes University

As previously noted, the Tsitsa Project consists of different organisational stakeholders. Each of these stakeholders has their own organisational structures within which they operate. The residents of the catchment are considered key stakeholders of the Tsitsa Project. For the purpose of this study, I will focus on the organisational structure of the Rhodes University implementation team (RUIT). This structure is depicted in Figure 1.2.

The National Department of Environment, Fisheries and Forestry: NRM division is the funder of various implementing agencies working on different, yet complementary activities in the Tsitsa River catchment. The RUIT was tasked with developing a research praxis strategy for the Tsitsa River catchment. DEFF: NRM tasked the RUIT team with this because they were "interested in supporting research that provides the necessary information, methods and toolkits to inform and enhance evidence-based decision-making, and support more effective ecosystem management interventions" (Fabricius et al., 2016, p. v). A multi-level, polycentric governance structure was then developed.

Though the Tsitsa Project consists of different stakeholders, the RUIT plays an important role in bringing the different stakeholders together at different interfaces. The senior advisory team, or A-team, is a team of senior experts who offer high-level strategic guidance to the Tsitsa Project. They meet once a year. The multi-stakeholder B-team consists of different government departments, mainly at provincial and local government level, land restoration implementers, and local community representatives. These gatherings act as opportunities for the different stakeholders to share workplans and activities with one other, as well as to recognise overlap between organisational activities and to plan and coordinate together. These meetings take place three times a year and are arranged and facilitated by the RUIT. Within the RUIT there are also various different communities of practice (CoPs). The role of these CoPs is to get role players and practitioners, interested in similar topics, to work together and exchange and build ideas.

Within the Tsitsa Project, there are six CoPs: Polycentric Governance, Sediment and Restoration, Livelihoods and Ecosystem Services, Knowledge and Learnings, Grass and Fire and Systems Dynamics. All these CoPs are involved with different activities and research being implemented in the Tsitsa River catchment. The activities of these CoPs are being supported by community engagement, steered by the community engagement officer. Within the organisational structure, at various levels, there are community members involved with the implementation, monitoring and support of the activities. These community members fulfil roles of citizen technicians, community liaison officers (CLOs) and vetiver monitors. Members of the traditional councils also participate in B-team meetings. Members from these CoPs play an important role in steering the vision, goals and objectives of the Tsitsa Project. They also played an important role in developing the Research Investment strategies (Biggs et al., 2018; Fabricius et al., 2016) that steers the direction of the Tsitsa Project. Incorporating this understanding in the development of the social indicators was crucial (see Chapter Five).

1.2.3 Location of the study

The Tsitsa Project's focus is on the Tsitsa River catchment, with the majority of the work to date being done in the Ntabalanga area of the catchment. The catchment, as indicated in Figure 1.3, includes commercial farmland and forestry plantations as well as communal lands that formed part

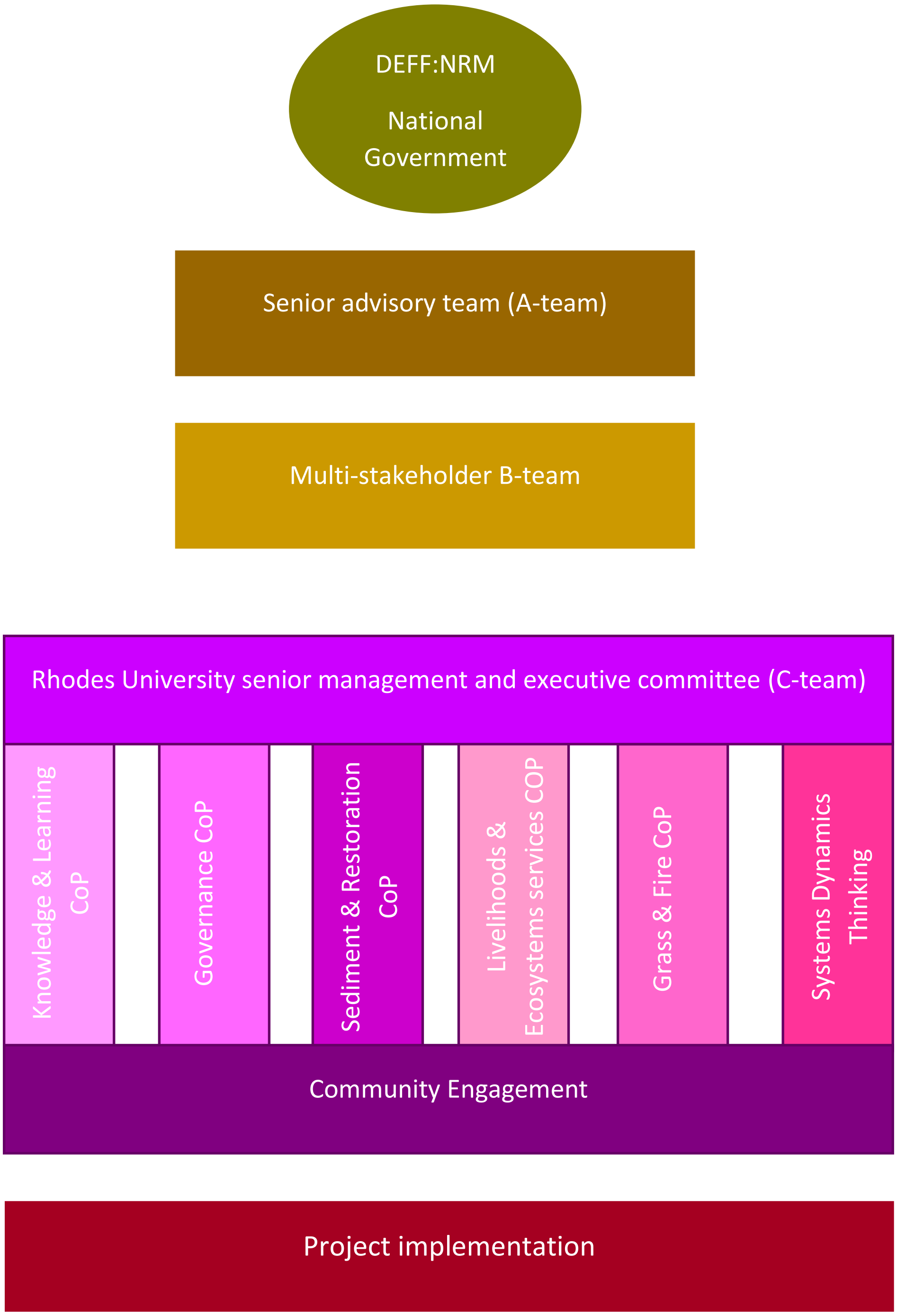


Figure 1.2: Organisational structure depicting the Rhodes University implementation team

of the former Apartheid homeland, Transkei. Figure 1.3 depicts the catchment and its location within the Eastern Cape, South Africa.

The dark, thick line outlines the Tsitsa River catchment. Within this line, the green areas depict commercial farming and the purple areas commercial forestry. The white area depicts the communal area. Though the Tsitsa Project involves NRM activities across the whole catchment, the focus of rehabilitation efforts had been on the communal lands where the land is most degraded and in need of restoration.

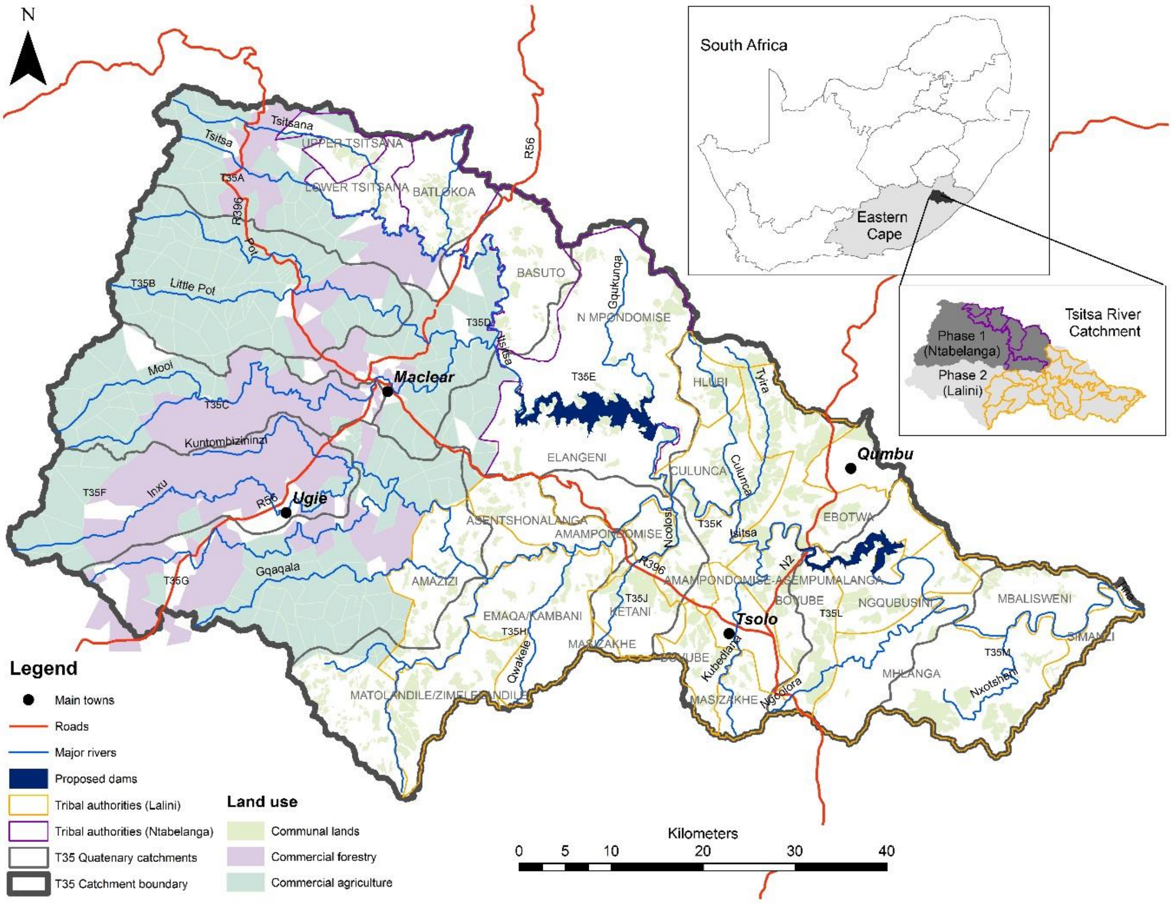


Figure 1.3: Map depicting the different land use areas in the Tsitsa River catchment

The study area is an area of divisions. The most obvious divide is between the commercial farmland and communal lands. There are further divides between white owned commercial farms and newly established black commercial farmers. Then there is the divide between the Ntabalanga and Lalini catchments. Within these catchments there are several villages under different traditional councils, known to raid each other’s cattle (Weyver, 2017). Sustainable NRM requires these different stakeholders to cooperate and work towards agreed upon goals that can be addressed and evaluated by the Tsitsa Project. This study took into account, and aimed to reflect, the diverse, yet shared valued beings and doings among such divided stakeholders.

1.2.4 Socio-economic profile of the catchment

The former Apartheid Homelands, the Transkei and Ciskei, make up large parts of the Eastern Cape. In the past these 'homelands' were impoverished by drawing away able bodied men and household heads to labour in the mining industry. Today, these areas are some of the poorest parts in South Africa. These areas are typically characterised by pervasive poverty, low levels of economic activity, limited employment opportunities, and dependence on welfare grants (Maroyi, 2017). This was also noted by Westaway (2012). Maroyi (2017) further estimated 72% of the population of the Eastern Cape live below the poverty line, compared to the national average of 60%. In an overview of poverty and inequality in South Africa, Woolard (2002) found that the Eastern Cape, together with Limpopo, are the poorest provinces in South Africa. Though poverty is not confined to one racial group in South Africa, Woolard (2002) also writes that poverty is more concentrated among black Africans than any other racial group. In the Tsitsa River catchment 90% of the residents are black Africans (Calmeyer & Muruven, 2014). Though the exact levels of poverty in the Tsitsa catchment are unclear, it is clear from these statistics that the likelihood of a household being poor in this catchment is high.

Looking deeper into the context of the Tsitsa catchment, Calmeyer and Muruven (2014) found that isiXhosa is the language spoken by the majority of the residents. The catchment is also characterised by high levels of outmigration of males that results in gender-ratio imbalances. While the traditional leaders in the area are majority male, there are more women living in the catchment than men. There are also more female-headed households in the catchment than male-headed households. Joe Gquabi district has the largest number of formal dwellings and the lowest rate of unemployment. Regarding education levels in the catchment, 17% of the population 20 years and older does not have formal schooling (Calmeyer & Muruven, 2014). Geldenhuys, Funda and Muguru (2016) also found that local communities rely massively on subsistence crop farming and land grazing in the area and substituted these activities with social grants. However, Westaway (2012) argued that in the rural Eastern Cape, only 1% of families derive an income from crop production and 4% from livestock production. It is suggested by some that the proposed dams would address these socio-economic hardships by making irrigated farming a reality and increasing the income that can be generated through agriculture (Pretorius et al., 2015).

Government and the then Department of Water Affairs identified the acceleration of social and economic upliftment of communities in the area as a priority (Mzimvubu Water Project, n.d.). This catchment area is considered to offer the water needed to support a variety of poverty alleviation developments in the region. The MWP literature argues that it can provide potable water to 539 000 people and hydro-power, can unlock agricultural development, enhance skills development, and bring tourism and other economic spin-offs (Umzimvubu Dam Project, n.d.).

The Department of Environment, Forestry and Fisheries has argued that these benefits will be short-lived unless the high levels of erosion in the catchment are reduced (Fabricius et al., 2016). The local soils are naturally erodible, and practices such as poor cultivation on steep slopes and overgrazing may increase erosion. Eroded soils in the streams of the Tsitsa catchment would contribute to the proposed dams silting up. If silted up, these dams will have less capacity to provide water or hydro power (Fabricius et al., 2016). Reservoir siltation has caused several dams in Australia to silt up and fail (Chanson & James, 1999). The Ivex dam which catastrophically failed in Ohio is another example of where siltation contributed to dam failure (Evans et al., 2000). Thus, it is crucial that the issue of siltation is addressed to increase the longevity of the proposed dams.

The Tsitsa Project (and other NRM programmes) aim to address both biophysical and social issues. These programmes must ensure that development efforts actually support the livelihoods of the most marginalised residents. The Tsitsa Project research (Weyver, 2018) has already suggested that cash-based developments would further increase inequality and hardship in the catchment if they are not preceded by the development of greater agency among the most marginalised residents. This further motivated a study that takes the valued beings and doings of the residents of the catchment into account.

1.3 Rationale for the study

The research conducted for this study aimed to address several shortfalls in the literature as well as in the implementation of the Tsitsa Project at present. Firstly, the study aimed to contribute to the work done in the catchment because, like the programme, this study aimed to do things differently by using participatory methods with the underpinnings of the capability approach to understand people's valued beings and doings. However, before conducting this study, there were no agreed upon social indicators to measure the development efforts in the Tsitsa catchment. This study therefore worked to develop such indicators. The capability approach was deemed a suitable framework for this study (as a preparatory study to conduct an evaluation) because the concept of human development, as defined by the United Nations Development Programme (UNDP), is founded on the capability approach (Alkire, 2010). It was also considered suitable for this study because of its deliberate incompleteness that allowed local communities to identify what capabilities count as valuable to them (Walker, 2005).

Secondly, the study aimed to make a theoretical contribution to the NRM and social learning field in general by exploring how more appropriate indicators can be developed with intended beneficiaries, for evaluations that encourage social learning. The aim of these indicators is to give feedback on whether the programme is benefitting the residents of the catchment's well-being by expanding their freedoms to choose between different lifestyle options (Ruta, Camfield & Donaldson, 2007). These indicators can enable the Tsitsa Project RUIT to be responsive to changes, both positive and negative in the Tsitsa catchment through what they learn through monitoring and evaluation. Thirdly, the research was built on the foundations of the capability approach, a theoretical underpinning that has not been utilised in the evaluation of natural resource management programmes in South Africa with the exception of work done in the water sector by Goldin (2013) although it is been used in other NRM and ecosystem services related research (Polishchuk & Rauschmayer, 2012; Sangha et al., 2015). The study thus aimed to make both a practical and a theoretical contribution to the field.

1.4 Research questions

The research questions for this study were two-tiered. Firstly, the study aimed to answer the theoretical research question:

- How can the capability approach be used to evaluate human development in the context of NRM initiatives?

Secondly, the study aimed to answer the following practical questions:

- What do residents of the Tsitsa catchment regard as valued beings and doings?
- What factors support or prevent the development of people's capabilities and functionings from the perspective of these residents?
- How can the capability approach be used to determine what people regard as valued beings and doings?
- How can the goals and objectives of a NRM programme be integrated with the valued beings and doings of beneficiaries to identify social indicators?
- What would the indicators of development be, informed by these findings?

I aimed to answer these questions in the chapters that follow in this thesis. An outline of the thesis is presented in the following section.

1.5 Outline of the chapters

Chapter One has provided a general introduction to the study and presented a background to the history of the Tsitsa Project. It also discussed the context in which the Tsitsa Project is being implemented. Based on this, I then presented the rationale for the study and the research questions which this thesis aims to answer.

Chapter Two presents an overview and discussion of literature relevant to this study. In this chapter I discuss critical realism as an underlabourer for the study. I proceed to take a closer look at development and what it means in the context of this study. I also discuss Amartya Sen's capability approach here. I go on to discuss evaluation in development programmes, how the capability approach has been used as an alternative theoretical framework for evaluation, and how this relates to social learning. Finally, I discuss participatory methodology and its relevance to this study, both in terms of participatory programme evaluation and a methodological approach for this study.

Chapter Three discusses the methodology and the methods used in this study. I start the chapter with a discussion on the implications of both critical realism and the capability approach for this research design. I then continue to discuss the participatory orientation followed in this study. I discuss the researcher orientation and reflexivity, followed by a discussion on the ethical considerations, as well as the trustworthiness, authenticity and validity considerations relevant to this study. The chapter moves on to the data generation methods, followed by a discussion on the different research participants in the study and the data generation methods that were used with each group. I then discuss the data analysis methods used to consolidate and make sense of the data. Finally, I conclude the chapter with an outline of the methods used to produce the social indicators.

Chapter Four presents the findings of what the residents in the catchment regard as their valued beings and doings, and the factors they consider to be structural constraints and conversion factors. This chapter answers the two research questions regarding what residents of the Tsitsa River catchment consider as valued beings and doings and what factors support or prevent the development of people's capabilities from the perspective of the residents. I present these findings starting with residents' valued beings and doings as understood by me based on my engagements with the residents of the catchment. This is followed by a presentation of what they perceived as their personal conversion factors, social conversion factors and environmental conversion factors. A discussion on residents' perceptions of structural constraints follows. I conclude the chapter with a discussion on the most significant findings regarding residents' capabilities and functionings in the catchment as understood after the data analysis.

Chapter Five focuses on what is regarded as important to the implementers of the Tsitsa Project and what the programme ultimately wants to achieve. In this chapter I present the Tsitsa Project's theory of change and proto-vision together with its underlying principles.

Chapter Six presents the social indicators based on the findings from Chapters Four and Five. This chapter thus answers the research question: what would the indicators of human development be, informed by these findings? In this chapter I discuss the change pathway as understood through the interviews and focus group discussions conducted with the residents of the catchment and the change domains as understood by the Tsitsa Project. I then present the social indicators followed by a discussion on the limitations of these social indicators and guidelines for using them. I conclude the chapter with an example of an indicator protocol that can be used for these social indicators.

Chapter Seven concludes the thesis. This chapter answers the research question: how can the capability approach be used to evaluate human development in the context of NRM activities? This chapter is mainly a reflection on the findings and the research process followed for the study. The chapter starts by discussing using the capability approach to evaluate human development in the context of NRM. I then reflect on using critical realism as an underlabourer in the study, and on using a participatory approach. Then, I reflect on the overall research process of the study and lessons learnt from this process. This leads into a discussion of the challenges I encountered during the research process. I conclude the thesis with a reflection on my own orientation to research and how it influenced the study.

Chapter 2: Literature Review

2.1 Introduction

This literature review starts by discussing my personal ontological perspective on the world, and how this was influenced by the critical realist philosophy that guided the design, methodology and execution of the study. This is followed by a review of the concept of development, what I understand by development and how this understanding and orientation towards development led me to choose the capability approach as presented by Amartya Sen, as a way of thinking about development, that if evaluated accordingly, can reflect more accurately whether the lives of those whom we claim to have developed, have indeed improved from their perspective. This is followed by a review of literature on evaluation in relation to the concept of social learning. In particular, I focus on why evaluation is needed for development programmes and how evaluation can contribute to social learning. Evaluation and social learning are key related concepts in the Tsitsa Project (introduced in Chapter One) because implementers want to learn from evaluation in order to continuously improve the outcomes and impact of the programme. I conclude the literature review by discussing participatory methodology and how the principles of this approach guided my interaction with the research participants and orientated me as an active learner in the study.

2.2 Critical realism

Critical realism is a philosophy or meta-theory that I used as an underlabourer in my study. A meta-theory as an underlabourer is used to guide your thinking about science and knowledge production through research. It is concerned with the philosophy of science, the ontology (our understanding of the world and the nature of reality) and epistemology (the philosophy of knowing and how we know things) (Hoddy, 2019). My understanding of these foundational aspects influenced how I went about designing and conducting my study and the methodology I chose.

There are different approaches to critical realism. I draw on the approach developed by Bhaskar (2008) as an alternative to positivism and social constructionism (Hoddy, 2019). Whereas positivism is exclusively interested in what we can directly observe and measure in the world, social constructionism argues that everything we know are constructions, implying that we cannot actually know a real world out there, only constructions about it that are all relative. Critical realism overcomes the limitations of both these approaches, with the argument that there is a real world out there that exists with or without our understanding and theories about it, but that our constructions of the world are also important to study and understand. Critical realists, such as Dänermark, Ekström, Jakobsen and Karlsson (2001) and Sayer (2000) argued that these constructions, or theories, the transitive dimension of the world, can help us to understand the objects of the world, the intransitive dimensions. I believe that a real world exists out there and has an influence on how we experience and perceive the world. However, our experiences and perceptions of the world are also real and are equally valid to those aspects of the real world that we can directly observe. Critical realism offers such a depth ontology that recognises both the intransient, physical world and underlying physical and social mechanisms that influence how we experience and perceive the world. Such a depth ontology was needed for the purpose of this study as outlined in Chapter One, that is, to understand people's valued beings and doings, what their experiences and perceptions are of the things that help them to live the lives they value (conversion factors) and the things that hinder them from doing so (structural constraints) within a particular social, biophysical and economic context.

Critical realism proposed a stratified ontology (Sayer, 2000) that consists of the Real, the Actual and the Empirical worlds (Kazi, 2003). Dänermark, Ekström, Jackobsen and Karlsson (2001) explained the Real domain as a potentiality that exists in the natural or social world, regardless of whether we are studying it, or whether we understand it. The realism of the real is where invisible objects, structures and powers exist, both natural and social. Examples are gravity, or social class, or ability to work. These objects, powers and structures have the capacities to act in certain ways and produce outcomes which we can potentially observe in the empirical world. For this reason, they are also referred to as mechanisms (Bhaskar, 1979).

The Actual is the domain (also real) where potential powers and structures get activated. An example would be when someone's ability to work gets activated into working, for example, when a resident of the catchment learns about rain harvesting and start planting a vegetable garden. The Empirical refers to the domain of our experiences. For example, the experiences and evidence of planting and harvesting vegetables, eating nutritious meals and selling excess vegetables for an income. In research underlaboured by critical realism, we do not merely aim to describe the things that we observe in the empirical domain. We aim to also explain the generative mechanisms and structures that get activated to understand those underlying mechanisms and structures which we may not necessarily observe directly, but which could give emergence to events we can observe in the empirical world (Kazi, 2003; Sayer, 2000). For critical realism, it is enough evidence to say that in order for x to happen (in order for Sarah to be harvesting vegetables in her garden), conditions of y must exist (Sarah must have knowledge, resources, access and motivation to be able to produce vegetables). These conditions can then explain underlying structures and mechanisms in a society. Sayer writes that a "realist ontology therefore makes it possible to understand how we could be or become many things which currently we are not" (Sayer, 2000, p. 12). For this reason, a realist ontology is a good meta-theory for my study, because in addition to understanding what people's valued beings and doings are, I also wanted to understand what the underlying mechanisms and structures are that enable residents of the catchment to be and do the things that enable them to live a life they value and have reason to value. I also wanted to know what enables or constrains the residents of the catchment to be able to do this. Understanding these complexities, could enable the Tsitsa Project to target its interventions to those mechanisms and structures that could facilitate the activation of powers that can enable the residents to be and do many things which they are currently unable to be and do.

Data collection mainly take place in the empirical domain because we can directly observe it. The domains of the actual and the real are more difficult to access. However, through inductive analysis of the empirical findings, Hoddy (2019, p. 112) proposed we can discover the "objects, structures and generative mechanisms in the domain of the 'real' and the conditions under which these mechanisms are activated" (ibid.). Dänermark et al. (2001) noted that "data are always mediated by our theoretical conceptions". Thus, data are theory based observations of events and experiences in the empirical world; our theoretical conceptions (transitive dimension) shape our interpretations of what we observe (intransitive dimension) and aim to explain what actually happens and the generative mechanisms that stimulate these events. This reduction of the three domains into one and what we can know about it is called the epistemic fallacy (Dänermark et al., 2001).

With this understanding of the world and how one can conduct research to develop a better understanding of the world in which we live and how we can impact on what we experience, through things such as development programmes. This ontological stance is also increasingly important in evaluation and theory-based evaluation (Brousselle & Buregeya, 2018) (see Section 2.5.1). In Chapter Three I discuss how this theoretical underpinning shaped the research design. I will now turn to development, and my understanding of why we need development programmes.

2.3 Human development – what it is and why we need it?

In the world we live in, there is a general strive to achieve higher levels of development on a local, national and international level. We strive for development because it is seen as something that will lift people out of poverty, end human suffering and enable people to thrive (Raworth, 2017). Development should enable people to live long and healthy lives where they can escape premature mortality, to be free of hunger and physical hardship, but also to be able to access education or other means that will enable them to freely participate in the society in which they live without shame (Sen, 1999). Numerous programmes aim to address the development of those living in deprivation and for a long time, leading thinkers have debated how to best measure the levels of development, and the extent to which better welfare has been achieved, if at all. For many years it was believed that economic growth would result in better quality of people's lives (EDCLC, 2015). The Gross Domestic Product (GDP) has been used as a measure for economic growth. The GDP is an indicator that measures "all consumption, investment, and government spending within a country, plus exports minus imports, regardless of the citizenship of the consumers or investors" (Stanton, 2007, p. 11).

The growth of the economic wealth of a nation has long been regarded as a hallmark of success (Castro & Prashad, 2018). However, such a monetary measure is limited in its ability to measure to what extent people's lives have improved, especially the poorest of the poor, because using the GDP as a measuring stick assumes that the gains from economic growth will automatically trickle down and the benefits thereof will be shared across the society. Thus, contrary to the assumption underpinning the GDP as measure of development, economic growth does not necessarily reduce poverty (Stanton, 2007). Economic growth at times does facilitate an increase in household income and lift people out of poverty. Across the globe, millions of people have already escaped deprivation because of economic growth and more people are now able to live long healthy lives, enjoy an education, have access to nutritious food, clean water, electricity and disposable income (Raworth, 2017). Though income plays a crucially important role in enabling people to escape poverty and enjoy a better quality of life, it does not guarantee it. In *Development as Freedom* (1999), Amartya Sen wrote about how African Americans continue to have poorer development outcomes than the poor in certain states of India and China, despite having much higher incomes (Sen, 1999). A utilitarian approach views a person's satisfaction or happiness as something that is "gained from consuming a particular bundle of goods" (Raworth, 2017, p. 35). I would like to argue, based on the work of Amartya Sen, that such a utilitarian approach is not sufficient to evaluate development. Nussbaum (1997, p. 276) writes that

> … the capability approach was a valuable theoretical framework for public policy, especially in the international development context. We [Nussbaum and Sen] commended it to both theoreticians and the practitioners as offering certain advantages over approaches that focus on opulence – GNP per capita, or welfare - construed in terms of utility of desire-satisfaction, or even the distribution of basic resources.

Thus, the capability approach is an alternative theoretical framing from which to look at development and how it impacts on people's lives. It goes beyond material goods and takes into account people's well-being and how development enhances their well-being or not. Looking at development and the outcomes thereof through the lens of the capability approach enables development from a bottom-up approach rather than a top-down approach. A top-down approach to development has been criticised for being paternalistic and alienating local people (Smith, 2008). Khdka and Vacik (2012) notes that it fails to address specific local management issues (Khadka & Vacik, 2012). Another criticism is that it does not take local socio-economic circumstances into account and lacks a deep understanding of human-nature interactions (Sodhi, Butler & Raven, 2011). The latter is of importance for the Tsitsa Project and its focus on natural resource management. Thus, a bottom-up approach should appreciate and acknowledge local people, their knowledge, needs and experiences (Smith, 2008). Incorporating these aspects into the planning of programmes gives it a person-centred focus and can potentially enhance people's well-being.

There is a long line of thinkers, as far back as Aristotle (Stanton, 2007), who argued that well-being is more than the wealth that people accumulate. Well-being, Aristotle argued, is generated by people's actions rather than their belongings (Stanton, 2007). Amartya Sen (1999) argued that development should focus on what enables people to live the lives they can live and have reason to value, and not only on what people have (although this is also important). This approach thus shifts from looking at the means of development, such as income, to the ends of development that which is being achieved with development, such as the well-being people enjoy or their ability to have the freedom to live a life they have reason to value (Stanton, 2007). Sen's capability approach informed the UNDP definition of human development. Human development, according to the UNDP is:

> … the expansion of people's freedom to live long, healthy, and creative lives; to advance other goals they have reason to value; and to engage actively in shaping development

equitably and sustainably on a shared planet. People are both the beneficiaries and the drivers of human development, as individuals, as in groups. (Klugman, 2010)

This take on development focusses on human development as the process of expanding the choices people have in their lives and the consequent well-being they can achieve as a result of these choices. People should thus be the beneficiaries of development as well as the agents of human development. Development should be "*by* the people *of* the people and *for* the people" (emphasis in original) (Alkire, 2010, p. 24). Thus, the development of people can result in them being able to be the agents of further development in their own lives (Sen, 1999). In a programme like the Tsitsa Project, the development initiative should thus help to facilitate the development of the residents in the catchment through expanding their capabilities. If the capabilities of the residents are expanded, they should then be able to facilitate their own development further, because such a form of development can foster further development. In order to be able to evaluate the impact of a development initiative, one thus has to look beyond income as a measure and include a wide range of indicators that can reflect outcomes that enable people to live the lives they value and have reason to value, and the ways in which they can be supported to achieve those. In the section below, I will take a closer look at Amartya Sen's capability approach and what we can learn from it to develop such indicators.

2.4 Amartya Sen's capability approach: Development as freedom

Amartya Sen argued that when we look at the progress of development, we have to look beyond monetary indices such as the GDP. An increase in income is not the only end of development; it is one of many and can simultaneously be a means to development that enables further development outcomes, such as being able to access education and have access to healthy food and be well-nourished which prevents starvation (Sen, 1999). For Sen, development is the undoing of 'unfreedoms' (such as starvation). Poverty is such a deprivation that causes unfreedom (Sen, 1999). When people live in poverty, they do not have the freedom to access education, have poorer educational outcomes, lack stable housing and nutritious food, to name only a few basic needs (Buzzelli, 2015; Lund et al., 2011; Noguera, 2011). Though an increase in income can help to undo these unfreedoms, it is not the only means of achieving this. It is not always successful in doing so and it can even create new 'unfreedoms' (such as debt). Stronger or more widely accessible institutions can undo unfreedoms. Access to healthcare and education has made tremendous contributions to people's ability to live longer healthier lives and prevent premature mortality (Sen, 1999). Through education, Buzzelli (2015), Wolbers (2000) and Sen (1999) all argued people can acquire skills to enable them to enter the workplace outside home. This can enable them to earn or increase their income, which can free them from hunger, poor health and many other conditions of deprivation. Thus, to address human development in the Tsitsa River catchment, the Tsitsa Project should not only look at how it can increase the income of residents, but also what other freedoms it can unlock, such as capacitating people to participate in democratic processes and decisions.

2.4.1 Capabilities and functionings

For Sen, undoing unfreedoms means expanding people's capabilities and the consequent functionings they choose to achieve. To have freedom means that a person can decide for him or herself what shape his or her life should take without any obstacles hindering him or her and without anyone coercing the individual to make decisions or to take actions in a certain way (Robeyns, 2017). Individuals should be able to make their own choices from the opportunities available to them (Buzzelli, 2015; Hatakka & Lagsten, 2012). Robeyns (2017) described capabilities as what people are able to be and do. Capabilities are the real freedoms or opportunities an individual has. Thus, they refers to the things an individual can be and do. A doing is something a person can do, such as herding cattle, caring for one's family or participating in the activities of a community. A being can be the capability of being well-nourished. Having a capability means that a person can choose to eat nutritious food and be well-nourished. However, the individual can also choose to fast and go hungry (Sen, 1999). The outcome of the choice of the individual between eating or fasting results in an achieved functioning. Capabilities are therefore the real freedom or opportunities an individual has to achieve a functioning x rather than functioning z. Development should thus expand people's capability sets from which they can choose a functioning above alternatives available (Sen, 1987). A person's capabilities are those opportunities a person pursues to achieve the objectives that are important to him or her in his or her life. These capabilities include the primary goods a person holds as well as "the relevant personal characteristics that govern the conversion of primary goods into the person's ability to promote her ends" (Sen, 1999, p. 74).

Martha Nussbaum (2003) further develops Amartya Sen's ideas around the capability approach arguing that "living well as a human being is about leading the life activities with human choice and their rationality" (Saigaran, Karupiah & Gopal, 2015, p. 191). She reinforces the importance of the environment in which people live and the extent to which these environments allow people the freedom to live the lives they choose to live. For people to have freedom of choice to choose which capabilities they want to convert into functionings, she proposes a list of capabilities which should be present in every society to give people the freedom to choose to live the lives they value and have reason to value. Her list of capabilities is summarised below (Nussbaum, 2003, p. 41-42):

1. Life: Being able to live to the end of a human live of normal length; not dying prematurely, or before one's life is so reduced as to be not worth living.
2. Bodily health: Being able to have good health, including reproductive health; to be adequately nourished; to have adequate shelter.
3. Bodily integrity: Being able to move freely from place to place; to be secure against violence; having opportunities for sexual satisfaction and for choice of matters of reproduction.
4. Senses, imagination and thought: Being able to use the senses to imagine, think and reason – and to do things in a 'truly human' way, a way informed and cultivated by an adequate education, including but not limited to literacy and basic mathematical and scientific training.
5. Emotions: Being able to have attachments to things and people outside ourselves. In general, to live, to grieve, to experience longing, gratitude, and justified anger. Not having one's emotional development blighted by fear and anxiety.
6. Practical reason: Being able to form a conception of the good and to engage in critical reflection about the planning of one's life.
7. Affiliation:
    a. Being able to live with and toward others, to recognise and show concern for other human beings, to engage in various forms of social interaction; to be able to imagine the situation of another.
    b. Having the social bases of self-respect and non-humiliation; being able to be treated as a dignified being whose worth is equal to that of others. This entails provisions of non-discrimination on the bases of race, sex, sexual orientation, ethnicity, caste, religion, national origin.
8. Other species: Being able to live with concern for and in relation to animals, plants, and the world of nature.
9. Play: Being able to laugh, to play, to enjoy recreational activities.
10. Control over one's environment:
    a. Political: Being able to participate effectively in political choices that govern one's life; having the right of political participation, protections of free speech and association.
    b. Material: Being able to hold property and having property rights on equal basis with others. Having the right to seek employment on an equal basis with others and

> having the freedom from unwarranted search and seizure. In work, being able to work as a human being, experiencing practical reason, and entering into meaningful relationship of mutual recognition with other workers.

This list is open-ended and subject to ongoing rethinking and revision. Nussbaum (2003) says that the way a society account for people's fundamental entitlements should always be subject to supplementation. For Nussbaum (2003) this list focuses on creating an environment where people can have the freedom to choose which capabilities they want to convert into functionings is an appropriate target that protects pluralism and diversity. For her, focusing on capabilities as fundamental entitlements rather than the functioning is important, because making functioning basic can violate people's individual cultural or religious beliefs. Developing social indicators for an NRM programme, or any other development programme, would therefore have to focus on conditions that can expand people's capabilities and allowing them the choice to convert capabilities into functionings or not. Goldin (2013) also argues that using the capability approach can be used to develop a list of capabilities relevant to the water sector. Such a list, she argues,

> would help focus the human dimension of water resource management. It can also be used as a tool for evaluating water projects and assessing whether or not integrated water management is allowing more opportunities for people to be or do what they choose to be or do (Goldin, 2013, p. 2).

For participation and stakeholder engagement to take place individuals need improved capabilities and functionings. These improved capabilities and functionings do not only depend on physical goods, such as physical resources, but also intangible good "such as dignity, aspirations, understanding and empowerment that undermines multiple aspects of well-being" (Goldin, 2013, p. 3). To take these physical and intangible goods into consideration, Goldin (2013, p. 9-10) proposes the following list of capabilities for the water sector:

1. Health and basic goods: This included health, sanitation, water, shelter, sleep and rest and nutrition. Without such health and basic goods, it is difficult for people to engage in water resource management.
2. Education and literacy: This include basic minimum levels of literacy and education, indigenous knowledge, a *priori* learning. To engage in the water resource management, people need access to and be able to process information. Good data should be available, accessible and relevant. Knowing and naming water related 'facts' can level the playing field among stakeholders.

3. Certain basic mental and physical capabilities: This includes innate capabilities that can be enhanced or undermined by the state. The state should protect citizenry and recognise the advantages and disadvantages due to people's mental of physical states of being. People should have the ability to address these disadvantages and mitigate for discrimination.
4. Self-respect and aspiration: This include feeling good, feeling valued and having hope. This speaks to intrinsic aspects of self-respect, including being able to appear in public without shame, feeling appreciated and having a voice that matters for the protection, use, management and control of water resources. It also includes feeling that things can get better and that one can be an agent of change.
5. Autonomy and self-determination: This include the control an individual has over his or her life. It includes aspects of equal relations of power; opportunity to engage in decision-making processes; function as an agent of change; opposite of being coerced; and doing things because he/she wants to.
6. Awareness: This includes knowing about the external environment. It speaks to the ability to assimilate a wide range of 'facts'; to be aware of issues; have the ability to ask the right questions; being aware of complexity and the need for depth and concern about issues.
7. Understanding: This includes comprehension and knowledge. It speaks to aspects of public reasoning to synthesise, evaluate and analyse information; recognition of complexity and being willing and able to give input.
8. Significant relations with others: This include connectedness, belonging and meaning. It speaks to aspects of knowing where to go when one needs assistance or support. Being able to mobilise for action and get political buy-in. Having trust and shared norms and values, as well as private and personal engagement.
9. Participation in social life: This includes structural social capital and organisational belonging. It speaks to having the opportunity to share with others within institutional settings where issues of water and other concerns are deliberated in public spaces. It allows for public reasoning and public engagements.
10. Accomplishment: This includes achieving one's goals and objectives. This speaks to the ability to achieve one's goals and objectives or capabilities and functionings. To have a sense of achievement in water security and feeling that one has a contributed and have a sense of ownership and meeting goals.

Closely linked with capabilities are functionings. Functionings are those things that people value being or doing like eating, working or being happy or connected to others (Hatakka & Lagsten, 2012;

Sen, 1999). A functioning is an achieved capability. These functionings can vary from elementary ones (such as being well-nourished by having chosen to eat a healthy meal that is available or avoiding disease) or complex (such as having positive self-esteem or being an integrated part of the community) (Sen, 1999). A person's capability set, Sen noted, is the "alternative combinations of functionings that are feasible for her to achieve" (Sen, 1999, p. 75). A capability refers to the freedom a person has to achieve different functioning combinations. A capability is thus the freedom to achieve various lifestyles that are of value to the individual (Buzzelli, 2015; Sen, 1999). The actual freedom a person enjoys is indicated by the various combinations of functionings the person can achieve (Hatakka & Lagsten, 2012). When people's capabilities are improved, this implies expanding the range of the freedoms they enjoy and development can then be defined on the basis of freedoms people enjoy (Ballet et al., 2007).

All concepts of functionings are value-neutral. This means that not all functionings can have positive or negative values (Robeyns, 2017). For example, the achieved functioning of being poor has a negative impact on those living in poverty. It was important for me to understand whether functionings of Tsitsa River catchment residents were experienced by them as positive (and if they would like to maintain that functioning or even improve it) or negative (something they wanted to change to a different, positive functioning). Understanding how residents value their functionings informs what freedoms they want to achieve and what deprivations they would like to be freed from. For example, do people living in poverty (negative value) want to earn an income, or increase their livelihood activities in the catchment, or leave the catchment? This understanding is necessary because human development is concerned with expanding the "worthwhile capabilities" (Sen, 1999) that people value. This should be done in a manner that is appropriate, advances equity, efficiency and sustainability and empowers people to be able to actively participate in their own development (Alkire, 2010, p. 39). Though Sen's student Robeyns (2017) argued that we should always conceptualise functionings in a value-neutral way, she acknowledged that we need to allow for the conceptual possibility that there are functionings that are always positive (e.g. being healthy), never valuable (e.g. starving from famine) or valuable or non-valuable in some contexts (e.g. being well-nourished, but a person with the capability to be well-nourished can choose to fast for religious reasons and go hungry).

With this understanding of capabilities and functionings as freedoms, development can be understood as the expansion of possibilities an individual can choose from, to be and do the things that are of value to that individual (Buzzelli, 2015). According to Yap and Yu (2016), it is important to develop such an understanding with active input from the residents themselves. These potential valued beings and doings do not have to already exist but could also be things that people would like to have available as choices in their lives. Sen argued that "development starts with the individual who should be able to decide for themselves what they value and have the capabilities to set their agenda regarding the goals of development and the ways to get there" (Andersson et al., 2012, p. 2). My focus was on what the Tsitsa River catchment residents expressed as their valued beings and doings and I used these as a guide to develop the indicators that could then (in future) be used to evaluate the programme. The capability approach suggests that researchers should not use pre-determined lists of valued beings and doings (Hatakka & Lagsten, 2012; Stanton, 2007). However, the proposed lists of capabilities from Nussbaum (2003, 1997) and Goldin (2013), can act as helpful guides to ensure that the social indicators would assess whether residents of the catchment capabilities are being expanded with the activities of the Tsitsa Project.

2.4.2 Conversion factors and structural constraints

Robeyns (2017) described conversion factors as the factors that determine the degree to which an individual can convert a resource into a functioning. Conversion factors thus represent how much functioning an individual can get out of a resource. Capability theorists describe three types of conversion factors: personal, social and environmental (Hatakka & Lagsten, 2012; Robeyns, 2017). Personal conversion factors are those factors that are internal to a person, such as their physical abilities or personal characteristics. Personal conversion factors characterise an individual's ability to convert goods and services into capabilities based on his or her own abilities. The social conversion factors are factors stemming from the social environment. This can include policies, as well as social, cultural, historical and other norms and traditions that can impact on individuals' freedoms, such as power relations or gender norms. Environmental conversion factors refer to factors in the built or geographic environment. The geographic environment can include things like climate, soil fertility and pollution. The built environment includes road infrastructure or access to potable water (Polishchuk & Rauschmayer, 2012; Robeyns, 2017). These conversion factors correspond with the concept of causal mechanisms in the critical realist framing. Thus, these conversion factors can act as causal mechanisms.

Structural constraints are those factors that can hinder people from expanding their capabilities and functionings that are of positive value to them. Structural constraints include "the institutions, policies, laws, social norms and so forth, that people in different social positions face" (Robeyns, 2017, p. 65). The diversity among individuals influences how they are affected by potential structural constraints (Sen, 1999). For example, a woman may not have the freedom to herd cattle in the mountains because she will be an easy target for criminals. Men, on the other hand are typically not restricted by this threat and can therefore take cattle for grazing in the mountains. Another example is a physically disabled person may not have the physical abilities to do the labour to start a vegetable garden. These structural constraints do not have to rely on material factors, such as income. Societal norms such as patriarchy can limit a wife's freedom to be able to search for and do work outside the household. These social, cultural, historical and religious customs and beliefs can have a negative impact on the capability set an individual can develop. Structural constraints are context specific, varying from person to person and situation to situation (Robeyns, 2017, 2016).

In order to understand to what extent residents of the Tsitsa catchment are able to convert resources into capabilities and functionings, I needed to understand the circumstances under which they live and the factors that enable or hinder them to live the lives they value (have the ability to make the choices between opportunities they value in life). This picture of their circumstances is important for understanding where interventions should focus to expand people's capability sets (Robeyns, 2017). Having an understanding of people's valued beings and doings and the structural enablers and constraints can guide programme activities. Being guided by an emic understanding of this is important for ensuring that the programme expands opportunities that are valued by its beneficiaries. Otherwise, the programme could expand the options of people, but those options may not be valued by the residents (Hatakka & Lagsten, 2012).

2.4.3 Freedom: A necessary factor for development

For development to take place, both the opportunities and processes for freedom need to be in place. Processes are those freedoms that allow or enable individuals to take actions and make decisions (Sen, 1999). For example, for Tsitsa residents to be able to participate in project meetings in a democratic structure, both the processes and the opportunities to do so have to be in place. The opportunities refer to the freedom people have in their personal and social circumstances, e.g. women and youth being allowed to speak up at meetings or having the energy and time to be able to attend the meetings. Income alone does not ensure that these processes and associated freedoms of actions and decisions are in place. However, with these freedoms in place, it is possible to expand more freedoms by building capabilities. In this way, people would be both the beneficiaries as well as the agents of development. Attaining freedom is a means, as well as an end to development. Development facilitates freedom and freedom further reinforces development (Alkire, 2010; Sen, 1999).

Sen regards democracy as an important process and opportunity that can facilitate development and the associated freedom. For a democratic system to work optimally, people need to develop the capabilities to make use of the democratic system and to really benefit from it (Sen, 1999). The capacity to actively participate in democratic development is influenced by conversion factors and structural constraints. This also speaks to people's ability to take development in their own hands and take it further. Sen argues that for people to take responsibility they also require freedom and the capability to do so (Sen, 1999). In the case of the Tsitsa Project, for residents to be able to take responsibility for natural resource management in the catchment, they require the freedom and capability to do so. Responsibility, Ballet et al. (2007, p. 185) state, "expresses the capability to feel and be responsible, not only ex-post but also ex-ante, by the capability to exercise self-constraint on a voluntary basis in order to satisfy one's obligation towards others." Thus, for people to participate in NRM practices like grazing regimes or erosion control, they should first enjoy the freedom to be able to choose the capabilities that will enable them to convert the resources available into functionings that support NRM.

Writing about agency, Alkire (2008) writes that agency should include both the autonomy and ability to make free choices. Free choices Sen (2002) argues should be "valuable, instrumentally effective in reducing poverty, and of central importance." Thus, when developing indicators that assesses the extent to which a programme is attributing to achieving well-being for beneficiaries it is important to look at the degree to which their agency is developed. People should both have the effective power which is the "power to achieve chosen results" (Sen, 1985, 211) and control, which is "the ability to make choices and to control the procedures directly" (Sen, 1985, 208-209). Furthermore, using proxy asset measures to measure agency can be problematic. Alkire (2008) argues, this is problematic because it assumes the conversion of assets to agency occurs evenly and does not take individual diversity into account. Different triggers causing agency expansion is also not taken into consideration and might be overlooked. Further, the interconnections between poverty and agency cannot be explored when the same measures are used to assess both phenomena. When developing indicators to measure agency, Alkire (2008) writes it is important to look at the two distinct aspects of autonomy and ability. Autonomy refers to "whether people are able to act on behalf of what they themselves value" and ability refers to "whether people are able to act on behalf of things that they are assumed to have reason to value" (Alkire, 2008, p. 18). Thus, when developing indicators that will be used to inform an evaluation of the Tsitsa Project, it is important to look at agency and whether people will be able to act on the things they value and have reason to value.

Sen's capability approach thus informs a multi-variate approach to measuring development broader than merely looking at economic indicators as a proxy measure of development. A capability approach supports the Tsitsa Project's vision to "improve the sustainability of local people's livelihoods" and to "foster equity in access to eco-system services" (Fabricius et al., 2016, p. iv) as it looks at whether people's livelihoods are sustainable, whether they have the freedom to make decisions that affect their livelihoods and whether their ability to access valued resources (e.g. water, grazing, work or education) increases or decreases during the life of the Tsitsa Project. To evaluate whether the programme is reaping success regarding human development, the Tsitsa Project needs to assess whether people's freedoms are being enhanced and if they can exercise their agency. The attainment of human agency is an important engine for development (Sen, 1999) and essential for further and sustainable development (Biggs et al., 2018).

Sen sees development as a continuous, dynamic process which is influenced by many factors including "economic opportunities, political liberties, social powers and enabling conditions of good health, basic education and the encouragement and cultivation of initiatives" (Sen, 1999, p. 4). This process of continuous development is based on agency as well as on the sustained freedom to utilise that agency in pursuit of freedom (Glassman & Patton, 2014). The freedoms or unfreedoms people experience can cultivate or hinder the development of further freedoms (Sen, 1999). This points to the interconnected nature of the different factors that can stimulate or hinder development. When we evaluate development, it is therefore important that we not only look at single outcomes such as monetary measure, cost-benefit ratios or single process inputs such as constitutive policies, but that we also look at the multiple factors and how they interact. The capability approach also views well-being as more than the material goods available to an individual. Though material goods available can contribute to the development of capabilities, the availability thereof does not guarantee the conversion of these goods into capabilities and functionings. Nussbaum (2003) gives the example of a woman who is financially secure but could be unable to perform in the workplace due to the burden of care she experiences at home. The high burden of care of this woman can potentially lower her capability to achieve the professional success she values and lower her well-being and quality of life. The capability approach is thus concerned with the real freedoms people have to choose what they value being and doing rather than with the material goods available to individuals.

Crabtree (2012, p. 30) stressed that development should also be environmentally sustainable. In the *Brundtland Report*, sustainable development is defined as aiming to “ensure that [we] meet the needs of the present without compromising the ability of future generations to meet their own needs” (Brundlandt, 1987, p. 16). Increasingly the role of natural resource management for sustainable development is recognised. In rural areas such as the Eastern Cape region of South Africa, people’s livelihoods are often closely interlinked with their natural resources (Cocks & Dold, 2006). For livelihoods to be sustainable they must be able to “cope with and recover from stresses and shocks and maintain or enhance capabilities and assets both now and in the future, while not undermining the natural resource base” (Mazibuko, 2008). For rural development dependent on natural resources to be sustainable, the natural resources should be used sustainably. Development interventions should furthermore be sensitive to local communities’ current livelihood strategies and how they use natural resources to help them sustain their livelihoods. Cocks and Dold (2006) cited several authors who have found that conservation approaches that rely on people’s cultural and religious values are often more sustainable than those that rely on legislation and regulation alone. Walker suggested that “we make development and freedom by doing development and freedom; a list of capabilities cannot simply be prespecified without public consultation” and that it is essential for the capability approach “that we pay attention to participation around decision as to what capabilities are to count for any particular collective or society” (Walker, 2005, p. 107). Thus, by inviting development beneficiaries to actively participate in the process of identifying what beings and doings they regard as valuable, I deepened my understanding and knowledge base that would help the RUIT to evaluate the development more appropriately. As Yap and Yu (2016) argued, flawed measures (indicators) can potentially result in misguided policies (and programmes). In the next section of the chapter, I will discuss the importance of evaluations in development programmes, with a specific focus on social learning in evaluation.

2.5 Evaluation in Development Programmes for Social Learning

2.5.1 Programmes as theories

For purposes of evaluating development, it is important to develop indicators that can reflect a more holistic and individualistic, context specific understanding. The OECD defines an indicator as a “quantitative or qualitative factor or variable that provides a simple or reliable means to measure achievement, to reflect the changes connected to an intervention, or to help assess the performance of a development actor” (OECD, 2002). Indicators can help an organisation to understand what happened or changed during the lifespan of a programme, it can also help you to ask further questions (CDC, 2018). Indicators can thus help an organisation to learn about the changes that are occurring and use these learnings to adapt the planning and implementation of the programme accordingly. Podems (2019) argues that to develop indicators it is important to have a discussion about the programme theory and the programme logic. These discussions often exclude beneficiaries or only engage beneficiaries in the framework of how the organisation views the problem that should be addressed. These discussions do not necessarily make enough room to delve into beneficiaries’ perspectives and how they see the problem, as well as what they think should be addressed. Especially if these differ from the organisation’s perspective, or if a top-down process was followed in the initial design of the programme (as was the case in the Tsitsa Project). For this reason, following a participatory approach, guided by the capability theory was well suited to develop social indicators for the Tsitsa Project. One needs to understand these indicators in the context of the programme. Making sense of indicators with the help of a programme theory can help to do this.

Critical realist evaluation is regarded as part of the fifth generation of evaluation that focuses on explanation. Such theory-based evaluations use programme theories to help explain what is happening in programmes and why. Theory based evaluations, Brousselle and Buregeya (2018, p. 154) argue, are

> … characterised by the development of a plausible programme theory, which is a primary product of the evaluation and upon which are based results, recommendations, and conclusions. Evaluations of this type differ from logic model construction in their analytical focus: their objective is not to report on the expected links between resources, processes and outcomes, but rather to provide a validated model that will enable a judgement to be made on the intervention being evaluated.

Realist programme evaluation assesses complex programmes by looking at what works for whom under what circumstances. It aims to uncover underlying mechanisms that can explain how the programme facilitates change, explaining the theory that leads to the programme outcomes and its different components. It also identifies different contextual factors that can lead to pathways of change to produce the expected outcomes (Brousselle & Buregeya, 2018). Hewitt, Sims and Harris

(2012) add that realist evaluation helps to articulate the programme theory of the programme under investigation. It can also test hypotheses that can be used to make recommendations that are transferrable, based on the programme theory, and to inform decision making and evidence-based policy-making processes.

Using a realist approach to evaluation, Pawson (2013) expands on this, arguing that programmes, including social-ecological development programmes, are theories about how we envision an intervention will create the change we desire. This is called programme theory which is used in theory based approaches to evaluation (Pawson, 2013).

Programme theory describes how change occurs and how to develop logical frameworks for programme planning and implementation (Sonderskov, 2014). Developing these models requires identifying and understanding the assumptions about what will bring about the anticipated changes in the programme (Markiewicz & Patrick, 2016). A programme theory can help one to understand how and why a programme worked or did not work (Chen, 1990).

Pawson (2013) argued that theory is the real starting point of science. Our ideas of the nature of a problem and the nature of a solution is captured in the programme theory. When implementing programmes, we need to know what we are trying to do and what we want to achieve, and this understanding should also guide evaluation. Our programme theory makes the 'if-then' propositions explicit. The programme theory of change refers to a conceptual model of the programme. A theory-based approach and its associated programme theory encourage the programme stakeholders to make explicit the causal relationships that exist between the activities of the programme and the results the programme is expected to achieve.

Understanding these programme theories and monitoring the process and impact of the programme accordingly (with the help of the social indicators) can allow participatory monitoring, evaluation, reflection and learning (PMERL) to track whether change is indeed happening as we envisioned. Pawson (2013) argued that tracking the outcomes through monitoring and evaluation should give us insight into the causal mechanisms and how these are, or are not activated and affected by the programme interventions. Having an understanding of this can help to give feedback into the learning loops for strategic adaptive management (SAM). In Chapter Five, I describe the Tsitsa Project's theory of change. Understanding the Tsitsa Project's theory of change will help us understand how the RUIT team members understand the Tsitsa Project and envision how change will occur in the programme. By developing an understanding of this, we can start to understand what the RUIT team values and would want to monitor and evaluate in terms of whether the programme is reaching its goals and objectives and addressing key issues. In the next section I discuss the importance of learning in evaluation.

2.5.2 The capability approach as an alternative evaluation framework

Sen's capability approach (Sen, 1999, 2010, 2017) has been used as an alternative theoretical framework for evaluation because it enables an evaluation to investigate the outcomes of an intervention rather than the outputs (Gigler, 2004; Hatakka & Lagsten, 2012). Using the capability approach as a theoretical framework enables an evaluator to look at what the outcomes are for a development intervention that allow people the freedom to live a life they value (Sen, 1999, 2017). Looking only at the outputs of an intervention is likely only to highlight potential expansion of capabilities. It does not guarantee that these capabilities will be valued by beneficiaries or converted into achieved functionings or expand their freedoms (Hatakka & Lagsten, 2012). The capability approach stresses that people are able to define their own development outcomes that are important to them, following a people-centred approach (Gigler, 2004). The open-ended nature of Sen's capability approach enables programme beneficiaries to focus on that which is of value to them (Hatakka & Lagsten, 2012). For Sen (1999) a person's well-being can be assessed based on their capability to achieve valued functionings. This supports using the capability approach to develop indicators based on what people's valued beings and doings are for it to be taken into serious consideration when the programme is evaluated. Yap and Yu (2016) also use the capability approach to develop well-being indicators for indigenous people of Australia. For them the capability approach was a suitable framework from which to develop an indigenous understanding of well-being necessary to evaluate well-being in indigenous communities.

2.5.3 The role of evaluation and learning

Organisations are required to conduct evaluations of the programmes they run to demonstrate to donors and other stakeholders that their work is getting the required results. Such evaluations in NRM are typically described as "a systematic and objective review of the appropriateness, efficiency and/or effectiveness of a programme" (Department of Environement and Climate Change NSW, 2009, p. 1). However, evaluations can also help project implementers to learn, e.g. to identify obstacles and challenges and to amend project plans accordingly (Alkin & Christie, 2004; Shadish et al., 1991). The regional and national managers of NRM programmes like the Tsitsa Project use evaluations to assist them with adaptive programme management in complex social-ecological development contexts, where the pathways to impact are often not clear (Botha et al., 2017). Williams (2011) described strategic adaptive management as a learning-based process. Cycles of learning and adaptation of practice lead to (1) improved understanding of the complex and dynamic natural resource system, and (2) improved management practices based on the understanding of what was learned. SAM replaces *ad hoc* trial and error learning with “learning by careful design and testing” (Williams, 2011, p. 1347). Such a process of adaptive decision making does not only enable programme staff to learn about social and ecological processes, but also about decision making processes, i.e. the programme itself. This is known as double-loop learning (ibid.). Double-loop learning can lead to a better understanding of how the programme works and can enable better management based on the lessons learnt from evaluation. A key purpose of the kind of evaluation needed by NRM programmes is thus learning. Monitoring change with the help of indicators can help to facilitate such learning.

It is necessary to evaluate programmes throughout the lifespan of a project in order to identify obstacles and challenges and track the outcomes of the project, including the process outcomes. These help us understand why outcomes are achieved or not. Monitoring the process and project implementation, enables programme implementers and funders to identify whether they are on track to achieve what they want to achieve. Reflecting on theory enables social learning. By reflecting on evaluation findings (including those derived from monitoring indicators), programme staff are able to build on their experiences and learn about programme strengths and weaknesses, and how the programme can be improved (Chen, 2013; Pawson, 2013). This requires ongoing reflection and reflexivity from those involved with the project to be able to adapt accordingly. Developing social indicators for monitoring and reflecting against the social indicators for the Tsitsa Project is one way in which the programme can engage in social learning (Cundill & Rodela, 2012; Keen, Brown, & Dyball, 2005). Developing these social indicators with a participatory approach, in line with the participatory stance of PMERL, further lends itself to learning. Podems (2019) writes that organisations increasingly prefer to learn throughout the evaluation process rather than to wait to the end of the evaluation process to receive feedback and recommendations. She further writes that participatory evaluation lends itself well to ongoing learning throughout the evaluation process.

Increasingly, social learning is presented as an important dimension of complex NRM programmes. Reed et al. (2010) described social learning as a "process of social change in which people learn from each other in ways that can benefit wider social-ecological systems". Social learning goes beyond the individuals involved and is taken up in social systems (Reed et al., 2010). This means that social learning is a process in which people, such as programme managers and other programme participants, learn collectively from each other and from their practices, to develop new understandings of the 'double-loop' and even triple-loop kind. Evaluation is a process that can support such learning, providing it encompasses relevant factors, in the case of the Tsitsa Project, both social and ecological factors which could be monitored by the social and biophysical indicators (biophysical indicators will not be discussed in this thesis).

Social learning is an important part of evaluation because it requires those involved with the project, beyond the project implementation staff, the project participants and stakeholders in different organisations related to the implementation of the project, to be involved with ongoing reflection on the actions that have been taken and the outcomes of these actions. These reflections are important for evaluation because of what we learn about the complexities of the interaction between people and the environment, the complex social-ecological system (CSES) as well as the interaction between this CSES and the implementation of the project (Keen et al., 2005). Learning about these complex interactions and relationships helps us to learn about the true impact of our interventions and how we could adapt to reach the outcomes and impacts we desire.

Programme evaluations are designated to focus on the social and other indicators chosen for monitoring and reporting. Often indicators are quantitative and economic in nature (e.g. individual or household income, or the GDP). This approach to indicators has been criticised for not giving an accurate reflection of the development that has taken place (Henderson, 1994). In the Tsitsa Project, residents were consulted to determine what land management activities they would value in the catchment (Lunderstedt et al., 2017), but there has been no work to determine more broadly what residents across the socio-economic spectrum in the catchment value. Understanding this would inform how the Tsitsa Project approaches working with the residents of the catchment, and how the project's impact is evaluated. An evaluation that includes social indicators would assist programme managers to learn about how to better direct and implement the programme. But managers also need to learn through the participation of other stakeholders in programme evaluations. Thus, the study made use of the underlying principles of a participatory evaluation approach and followed the approach where possible to collect data in the field and reflect on the suitability of indicators to be used in future evaluations. Further to the earlier definition of social learning for SAM, Cundill and Rodela (2012, p. 13) described social learning as “a process in which people share their perspectives and experiences to create common understanding of a situation and to develop strategies for collective action to improve the situation”. Based on this definition, social learning involves participants learning from each other, regardless of level of education, position in the project, or relationship to the project. In this particular study, there was not much room for the project beneficiaries to learn about the project, but based on the capability approach there was a big focus on the Tsitsa Project implementers from the different organisations learning about the residents of the Tsitsa Project and their valued beings and doings. The social learning that this study aimed to achieve was for the Tsitsa Project designers to understand what catchment residents value in terms of being and doing, and how they may want things in the catchment to be different or not.

As suggested above, social learning is a process of co-learning between different project participants, project beneficiaries, government and non-government (Cundill et al., 2014). For this co-learning to take place, it is necessary to build relationships and trust between those involved with the project (Snyder & Wenger, 2010). To build relationships and trust, it is necessary for the facilitator to engage with stakeholders, especially the project beneficiaries who may be in vulnerable positions, to be able to create an atmosphere in which people feel comfortable and will have the courage to speak up and express their views (Cundill et al., 2014). To achieve this, I aimed to follow the underlying principles of the participatory research approach to enable me to really listen to the voices of the most vulnerable and reflect them in my study. In the next section, I will discuss these underlying principles and how they have influenced my study.

2.6 Participatory methodology

Given the capability approach is a person-centred approach that considers the diversity of individuals important in development and its impact, it seemed a participatory methodology would be important in this study. This was supported by other capabilities research, such as Yap and Yu (2016). A participatory approach, I believe, can also facilitate social learning (see section 2.5.2 and (Georgina Cundill & Rodela, 2012). A participatory methodology was also appropriate given the participatory stance of the Tsitsa Project (Biggs et al., 2018), and my own convictions on how research should be conducted ethically (see section 3.5). The underlying philosophy and principles of a participatory methodology focus on bringing out the voices of the traditionally voiceless and on making it possible for the most marginalised to participate actively (Theis & Grady, 1991) as partners in the research process (Chevalier & Buckles, 2013). The methods of participatory action research, Participatory Rapid Appraisal (PRA) and Participatory Learning Appraisal (PLA) (Schenck et al., 2010) are examples.

Participatory methodology aims to help the researcher develop an insider's (emic) perspective of the phenomena being studied (Peters, 2015) and can be used to explore the multiple realities of people that can lead to different richer understandings (Chevalier & Buckles, 2013). A participatory approach aims to address the problems associated with the differences in the power balance between the researcher and the research subjects, and between different groups of participants (such as women and men or youth and elders). Reducing the power gradient helps to encourage more contributions from marginalised research subjects, who are then more likely to be more willing to share their views and opinions (McTaggart, 1997; Yap & Yu, 2016). Participatory methodology encourages people to challenge dominant thinking that could lead to new thinking and action, and helps to overcome the elitism of conventional research and knowledge (Chevalier & Buckles, 2013).

Participatory programme evaluation has been widely used as another alternative for traditional evaluation. In Cousins and Whitmore's (1998) seminal work, they distinguish between two different types of participatory programme evaluation, namely practical participatory evaluation and transformative participatory evaluation. Practical participatory evaluation has its roots in the global north and has the

> central function of fostering evaluation use, with the implicit assumption that evaluation is geared toward programme, policy and organisational decision making. The core premise of practical participatory evaluation is that stakeholder participation in evaluation will enhance evaluation relevance, ownership and thus utilisation (Cousins & Whitmore, 1998, p. 88).

Transformative participatory evaluation originated from the global south and "invokes participatory principles and actions in order to democratize change" (Cousins & Whitmore, 1998, p. 90). Transformative participatory evaluation emerged as an alternative to the positivist models and approaches to evaluation that were seen as "exploitative and detached from urgent social and economic problems" (Cousins & Whitmore, 1998, p. 90). Transformative participatory evaluation is deeply rooted and has its foundations in human and social development, adult education and the women's movement. This approach to evaluation aims to empower people through participation in the process of constructing and respecting their own knowledge. This is built on Freire's idea of conscientisation (Freire, 1970) through people's understanding of the connections between knowledge, power and control. Learning is an inherent part of the evaluation process and the actions that may result from it (Cousins & Whitmore, 1998). They further write that both practical and transformative participatory evaluation have the power to empower participants, have practical value and creates data from the practitioners' perspective.

The intention of this study was to use a participatory approach to allow for the meaningful inclusion and participation of the residents of the Tsitsa River catchment in the research and therefore to produce knowledge that is grounded in the worldview of the local people. This intention was supported by several authors (Denney et al., 2018; Yap & Yu, 2016). I also aimed for true participation from the residents of the catchment in my research; I wanted to reflect their voices genuinely in the study and not simply use a 'mask' of participation (Chevalier & Buckles, 2013; Denney et al., 2018).

The participatory approach is complementary to the capability approach (Yap & Yu, 2016) and was thus an appropriate approach for exploring what people regard as valued beings and doings in their lives, towards their own development (Yap & Yu, 2016). In writing about developing culturally relevant indicators for indigenous well-being using a capability approach, Yap and Yu (2016) stated that it is important that indigenous people are collaborators in the research process rather than 'research subjects', so that they can "meaningfully participate in the research process to co-produce knowledge according to indigenous worldviews" (Yap & Yu, 2016, p. 317). Participatory methodology allows research participants to exercise their voices and agency. Furthermore, participatory methodology is also in line with the aim of the Tsitsa Project's (Biggs et al., 2018). It is important for the Tsitsa Project that the residents of the catchment develop agency and a participatory research process was one small way in which this could be encouraged.

The participatory approach, outlined above, together with my personal orientation towards people, guided my behaviour and interactions with the research participants. While the residents were not part of the whole research process, from conceptualisation, design, all the way through to analysis and presentation (Zukoski & Luluquisen, 2002), a participatory orientation and approach, I believe, helped me to remain more sensitive to the voices of the research participants. This approach also ensured that in my engagement with them, I acted as a learner who was also an active participant in the research process together with the residents of the catchment. This will be discussed in more depth in the next chapter, Chapter Three, where I discuss my position as researcher in the study and the methodology followed for the study.

2.7 Conclusion

This chapter has given an overview of critical realism, why it is a suitable underlabourer for my study. This was followed by a critique of the evaluation of development that focuses on economic growth. I argued in support of Amartya Sen's more person-centred approach to development. I discussed why development is important and the importance of evaluating whether development programmes are making the intended impact. Numerous development programmes aim to address the dire conditions of poverty and deprivation in which millions of people continue to live worldwide, despite strides in development. According to thinkers such as Amartya Sen, monetary measures such as income do not give a complete picture of the true impact of development (or lack thereof). To better measure the real impact of development, according to a capability approach, one has to look at the real freedoms that people can enjoy to live the lives they value and have reason to value. This is what this thesis intends to contribute to, learning how we can use a capability approach to develop social indicators for more appropriate evaluation of development programmes that can also engage programme implementers in ongoing social learning processes, ideally with catchment residents, about what the programme should be achieving, and how . I flagged the concept of social learning as a recognised key factor in NRM programmes in complex contexts and the role of evaluation in supporting social learning. The chapter concluded with a section on the participatory approach to research and how I was influenced by this approach to engage with the research participants in a particular manner. This approach played a major role in how I executed my study, that will be discussed in the following chapter on methodology.

Chapter 3: Methodology

3.1 Introduction

This chapter focuses on the methodology, i.e. how the theoretical approach followed influenced the research design, the stance of the researcher, ethical considerations, and the methods used in data collection and analysis. With this thesis being located within a project that aims to work in a participatory manner, participatory methodology was chosen for the research. Participatory methodology, as discussed in Chapter Two, is an approach to research where the so-called subjective research participants become actively involved in the research process, co-constructing the knowledge (Chevalier & Buckles, 2013). However, due to the risk of potential research fatigue (Clark, 2008) (the catchment residents have been exposed to several research projects), I was decided that existing research data should be used to limit the potential strain of participation in another research project. In addition to this, I wanted to respect what had been shared by catchment residents in other research projects. I wanted to use these inputs in my research. With this in mind, I set out to design a research approach that is based in the philosophy and principles of participation while limiting the effort and energy needed from participants for the research process. Though I regard it as crucially important that local residents' voices should be heard and reflected in the research process, I am also aware of and sensitive to the fact that participation in such a research process is voluntary and people often have limited time and energy to spend on a research process (K. Rowntree, personal communication, 12 July 2018). This chapter will explore the principles and theory of the research methodology followed, as well as the research methods that were used to gather and analyse the data for this study.

3.2 Implications of critical realism and capability approach for research design

In a realist philosophy, ontology is the starting point for the philosophy of reality (Dänermark et al., 2001). As explained in Chapter Two, Bhaskar's ontological map (Dänermark et al., 2001) proposed that there are three ontological domains which are separated from one another (while simultaneously being closely related and influencing each other): the Real, the Actual and the Empirical. The Real domain consists of everything that exists, both natural and social. Objects can exist in the real domain regardless of whether they are empirical objects or whether we have a substantial understanding of them (Kazi, 2003). The empirical domain consists of observable experiences and contains 'data' or 'facts'. These 'data' or 'facts' (such as people's valued beings and doings) can be directly or indirectly observed. It is possible to experience or observe something regardless of whether the actual or the real domains are known or unknown; similarly, the real and actual domains are there, even when we do not observe them manifesting. Realists accept a causal criterion and the existence of an object thus does not depend on its observability. This allows us to overcome the relativism of constructivist evaluations where all subjective perceptions, opinions and other constructions are often equally valued, regardless of their link to the Real. Evaluations which use only objective measurements, on the other hand, are victims of *epistemic fallacy* – the idea that we analyse only that which can be empirically observed. Thus, the epistemic fallacy can reduce all ontological domains to the one domain of what can be empirically observed (Dänermark et al., 2001).

I argue that realism and Sen's capability approach are congruent. Both these theories state that the natural and the social world exist beyond our understanding of it, "and people are born into social constructions that will determine the way they live their lives to a certain extent" (Fourie, 2016, p. 51). These constructions have an influence on what people value and how they act in relation to the social and natural world. Realism thus provided a philosophical guide to studying the relationship between individuals and the things they value being and doing in the natural and social world.

Fourie (2016, p. 51) suggested that realism "infers that an investigative, creative and qualitative methodology is appropriate" for research. This was substantiated by Sayer (2000, p. 17): "meaning has to be understood, it cannot be measured or counted, and hence there is always an interpretive or hermeneutic element in social science". Based on this guidance, this study made use of a range of research tools and activities to obtain a rich understanding of the catchment residents' valued beings and doings, the conversion factors that help them to achieve those and the structural constraints that limit their freedom. The interpretation of this data was not limited to what people verbalised. A realist study required a deeper ontological analysis that will help to explain the generative mechanisms that shape the things that are experienced by the research participants (Fourie, 2016). In this study, this understanding helped me to choose a core set of social indicators.

3.3 Participatory orientation

Due to the participatory nature of the Tsitsa Project, and my own convictions on how research should be conducted ethically (see section 3.5), a participatory orientation was taken. Participatory methodology is explicitly conscious of bringing out the voices of the traditionally voiceless. It focuses on making it possible for the most marginalised to participate actively in studies (Theis & Grady, 1991) and on making them equal partners in the research process (Chevalier & Buckles, 2013).

There has tended to be an overemphasis on particular activities as being more participatory than others, in what some have called 'the tyranny of participation' (Cooke & Kathari, 2001). Thus, in implementing a participatory approach, it is more important for the researcher to adopt the behaviour of a facilitator and to listen than to follow the details of certain activities (Kumar, 2018). The focus was on respecting the participants and their voices in an ethical manner and ensuring open communication through "a sense of enduring care and carefulness" (Chevalier & Buckles, 2013, p. 256) in my interactions with participants. The capability approach speaks of ethical individualism which stresses that individuals "are the ultimate units of concern" (Khadilkar et al., 2015, p. 1603).

The social indicators did not only have to reflect the valued beings and doings of the residents of the catchment. The social indicators also had to be relevant to the Tsitsa Project. This required that I involved members of the RUIT. Due to most of these team members being located at Rhodes University, where I was also based, it was more feasible to include the RUIT throughout the research process. Again, including these team members in a participatory manner helped me to learn from them what was important to the Tsitsa Project. However, the participatory process also served to help the RUIT to learn from the research project about what was important to the residents of the catchment. Thus, the participatory process supported learning at various levels.

3.2 Researcher position and reflexivity

As a social researcher, I am both part of this world as well as studying this world (Maxwell, 2012). This means that I am influenced by this world but that I also have the potential to influence this world. I have to be conscious of this while conducting research, because it can influence the research process and the conclusions I draw. Reflecting on the personal characteristics and motivation that brought me to this study – including my prior beliefs, values and subjective qualities, and how this influenced the research process – was therefore necessary (Maxwell, 2012; Pillow, 2003). The next section focuses on my position as a researcher during this study, followed by a section on reflexivity, exploring how I dealt with personal influences during the research process.

3.2.1 Researcher stance

I conducted this study as an evaluation researcher with an interest in developing my academic understanding of evaluation, and as the evaluation coordinator of the Tsitsa Project. In relation to the catchment residents, my position as a researcher was one of an outsider. I entered the research site as someone who was new to the Tsitsa catchment. I did not live in the area and made only brief visits to the catchment for the purposes of collecting data and in my capacity as evaluation coordinator. I was also an outsider in term of language, culture and race in most settings. The majority of the research participants were black Africans and spoke isiXhosa, a language in which I can only understand a few basic conversational phrases. I entered the field as a white, Afrikaans speaking female.

With regard to my personal life history and experiences, I entered the field as a more empathic insider-outsider. I had grown up in a rural area and maintain connections with this landscape despite not living there anymore. Though I grew up in a different part of the country, I perceive myself to be empathic to the plight of people living in rural areas who often feel a sense of being forgotten by big development initiatives. To me it is important to pay close attention to the voices of the marginalised. I also had some grasp of the experiences of commercial farming communities I visited, since I had grown up in a farming environment.

As a researcher I approached this study from a realist ontology and epistemology (see section 2.2). This means that I perceive the social world to exist and people's construction of their life worlds to be 'real'; but also that our empirical observations of their reality are only the tip of the iceberg and it may be important to look deep below the surface of what is being said. Understanding people's valued beings and doings and how this related to what they regarded as real, required me to look beneath the surface of what was being said. This required a level of theoretical abstraction from the more concrete beings and doings people expressed during interviews and focus group discussions.

With regard to the subject and the participants in the study, I regarded the voices of the participants as central to the research process. Therefore, I, as the researcher took on a learner-facilitator role during the research process and was an active participant focused on learning rather than an expert academic researcher. This, together with my training as a person-centred social worker, motivated me to follow a participatory approach in engaging with the research participants (see section 3.3).

Throughout the research process I was continuously reflecting on my role as researcher and my position in relation to the research participants. It was important to remain sensitive to the societal power relationship which was mostly unequal between me and the research participants and which I had to constantly mitigate against to make it more equal during the research process.

3.2.2 Reflexivity

Reflexivity is described by McMillan and Schumacher (2006) as the practice of rigorous examination of the researcher's personal and theoretical commitments and evaluating how these serve the research process, from selecting your research approach, framing the research problem, generating data, and developing interpretations from the data. Different strategies for reflexivity have been identified by Pillow (2003). I used three of these strategies in my research process to help me remain aware of my own subjectivity and to ensure a legitimate and valid outcome and product (the thesis). The reflexive practices I followed during the research processes were: reflexivity as recognition of the self (personal self-awareness), reflexivity as recognition of other (capturing the essence of the informants and accurately reflecting their voices), and reflexivity as truth gathering (being accurate in my research) (Pillow, 2003). Throughout the research process I kept a research journal. This journal helped me to keep track of and reflect on my thought processes on how the research was developing, what I was finding and the challenges I encountered along the way. Keeping this journal and reflecting on it later, helped me to pose questions to myself on the process and what I was finding. This pushed me to keep on searching for a clearer understanding of the things that were unclear to enable me to accurately represent it in my thesis. I also made use of critical colleagues. I regularly consulted colleagues who are familiar with the research context and participants and discussed events or findings with them and asked them for input that could help me to better understand what I was observing in my research. This was particularly important because some of these colleagues were able to share cultural insights with me with which I was not familiar (for example the isiXhosa speaking community engagement officer). Practicing reflexivity throughout the research process contributed to the trustworthiness and authenticity of my research. According to McGarry (McGarry, 2017), reflexivity is closely related to ethical considerations, which I discuss next.

3.2.3 Ethical considerations

Ethically, as a researcher, it was my responsibility to engage with the research participants in a manner that is respectful and not exploitative. There is no set of rules or a toolbox that can be implemented to ensure ethical research. Rather McGarry (2017) advocated for an approach of 'do-no-harm', to do good and undo harm. To follow this approach, I followed the recommendations of Renganathan (2009). This entailed personal reflexivity and I had to continuously scrutinise, examine and reflect on my research process and my interactions with the research participants. The reflexivity practices mentioned in section 3.4.2 helped me to do this.

Ethical research does not only refer to how the researcher conducts him or herself during the fieldwork when engaging with research participants. It starts during the conceptualisation of the research and continues right through to when the research product is complete (McGarry, 2017). For me, developing a research idea itself is an ethical matter. I believe that individuals should have a democratic voice in their own development and that development initiatives should address the interests and concerns of the people affected by development. Hence, my excitement when I was introduced to the capability approach. I found the approach addressed many of my ethical concerns regarding how we evaluate development programmes and develop indicators. For me, this study is in itself an attempt at doing evaluations more ethically in the future. It is also my intention to give feedback on this approach to the scientific community to suggest the approach I followed as an alternative to our expert-driven ways of doing evaluations. Investigating this approach and its value or feasibility, addresses my intention to add value to how evaluations can be conducted, as well as to the strategic adaptive management of the Tsitsa Project.

In conceptualising my research, I tried hard to frame my research in such a way that it would not only add value to the evaluation community but also to the Tsitsa residents themselves. However, these benefits may not be immediately visible to the catchment residents due to their abstract nature and residents not being familiar with how evaluation impacts on the planning and implementation of development projects. This was also evident when I explained the purpose of my research to residents of the catchment. Regardless of this struggle, I attempted to conceptualise and conduct research that would not be exploitative of the catchment residents and programme staff (Setati, 2005). Obtaining informed consent is often regarded as central to ethical research involving participants. The participatory process and engagement with the residents of the catchment have continued after the completion of the research for this study. The findings of the research and social indicators were shared with the citizen monitors who will be responsible for collecting data on the social indicators. With this research, there were also many feedback loops that crossed between different research projects. This study gave feedback to the residents on findings of the stakeholder analysis (Rivers et al., 2018; Sisitka et al., 2016) and other participatory processes in the catchment

(Lunderstedt et al., 2017). Feedback from this research will also be given to the residents of the catchment through various capacity development activities (see Chapter 7 for more information on this).

Informed consent is the practice of only asking participants whether they are willing to participate in research after they have received comprehensive information about the study, what it entails and how it could potentially benefit or harm them (Corrigan, 2003). However, the actual process of informed consent is usually much more complex than this definition. Corrigan (2003) argued that there are many different factors playing a role on how research participants make their decisions on whether or not to participate in research. These factors extend beyond having enough information about the study and how their participation, or choice not to participate, can affect them. Cultural and social norms around decision making, as well as the relationship between the research participants, the researcher and the organisation represented by the researcher influence their decision making. In my research, this complexity was very real and a big concern for me with regard to people's willingness to participate in the research; residents of the catchment could hope that participation would help them to benefit in a different way if not indirectly from the Tsitsa Project. I had to repeatedly explain to residents of the catchment that participation in this research did not mean that the Tsitsa Project would be able to address the needs as they were expressed during the focus group discussions. However, the complexity of informed consent does not take away from the importance of it. Rather, it means that extra care had to be paid to the process of obtaining informed consent. I relied heavily on the help and expertise of the community engagement officer to help me explain the research and its purpose to the research participants. It also further stressed my responsibility to protect the rights and welfare of the research participants by creating the opportunity for them to practice their autonomy within the constraints and challenges posed by informed consent.

Another ethical matter that was discussed after obtaining consent from the research participants was confidentiality, i.e. how I protected people's identity as recommended by McGarry (2017). Confidentiality refers to the research participants' right to have their identity and their personal responses kept confidential in the research process (Brenner, 2006). Research participants were given the option to remain anonymous or have their names associated with their input as a way to recognise their participation and voices in the research. However, due to the evident discomfort of the majority of the residents to have their names associated with what they had said, I decided that I would keep all the names of the residents confidential. After reflecting on this discomfort, I decided that it would be unethical to share their identities in the study because it was likely that they had agreed to have their names mentioned in the study because of the complexity around decision making and saying no to a researcher (Corrigan, 2003).

Respecting the research participants' autonomy and views also required me to constantly ensure that I practised the principle of respect and individuality, both during focus group discussions and with the individuals before, during and after the groups. Grobler, Schenck and Mbedzi (2013) described one way of showing respect to individuals as active listening and ensuring that one truly understands and captures what was said and meant by the research participants and then accurately reflects this in the research. For example, when summarising findings, it was important to track back to individual interviews to check the meaning. Here the principles of social work and a participatory approach to research guided my behaviour.

3.2.4 Trustworthiness, authenticity and validity

Research must give a trustworthy and authentic representation of the phenomenon being studied. The term validity is often used to describe this. However, I prefer trustworthiness and authenticity because I agree with Maxwell (2012) that it better represents the standards employed by qualitative researchers to evaluate the quality of their research. Research is trustworthy and authentic when it is able to give an emic understanding of the phenomenon studied. Validity cannot be ensured by applying a set of protocols. It can only be assessed. However, there are certain measures a researcher can take that can assist in achieving validity. One such measure is ensuring that the research methods are appropriate for the research question (Maxwell, 2012). Great care was taken to ensure this as far as possible (see sections 3.2 and 3.3).

Triangulation is another approach to assuring validity. Triangulation refers to the observation of the phenomenon researched from more than one perspective. This strategy can not only ensure more accurate data but can also lead to a deeper understanding of the phenomenon being studied and gaining additional knowledge about it (Flick, 2004). In this study, I used two forms of triangulation: the triangulation of data and an adapted form of investigator triangulation.

Triangulation of data was used by using different methods to gather data about the phenomenon being studied (see section 3.7) (Biggeri & Ferrannini, 2014). This included document analysis, semi-structured interviews and focus group discussions. By comparing the data obtained from these different sources, I was able to justify my knowledge and understanding about the topic and expand it with different insights gained from different methods. Some of the methods, such as the focus group discussions, also acted as a form of member checking (Birt et al., 2016) where research participants were able to disagree with the data presented and correct it according to their perceptions.

Investigator triangulation usually refers to comparing the findings of different interviewers with one another (Flick, 2004). In this study, I was the only interviewer, but I was at times accompanied by a translator, the community engagement officer and a post-doctoral colleague who also conducts research in the catchment. I discussed and compared my understandings and observations with them, and this also helped me to gain additional insight into what I was observing.

Two different forms of validity applied in my research: descriptive and interpretive validity (Maxwell, 2012). Descriptive validity refers to the accurate representation of data and interpreting the data in a manner that can give an accurate, emic understanding of the phenomenon that was studied (Maxwell, 2012). I aimed to ensure descriptive validity by revisiting my data sources repeatedly and comparing the original data with my interpretations and more abstract understanding of the data with the different original data sources. I also kept a diary of the research process to keep track of my thinking and research activities and what happened.

Interpretive validity refers to a trustworthy interpretation of what was observed in the study and data and representing the meanings, behaviours and events in a way that is understood by and representative of the participants' own understanding of the phenomenon. It thus aims to reflect the research participants' own perspective of the phenomenon. This can include the research participants' unconscious understanding of the phenomenon (Maxwell, 2012). Here, I utilised extracts from the interviews and focus group discussions to support my arguments.

Generalisability in qualitative research can refer to generalisability within the research population only (Maxwell, 2012). In critical realism, generalising from individual cases is enabled through the notion of mechanisms. In this study I acknowledge that the perceptions and understanding of the phenomenon being studied are limited to those who participated in the study and could not be generalised beyond this research group. This is in line with the ethical individualism of the capability approach (Khadilkar et al., 2015). Being able to generalise the findings of this study to such a small population, was deemed appropriate because the research participants were representative of the population that is most likely to interact with and engage with the Tsitsa Project despite not being representative of the larger population (see section 3.9).

Construct validity was another important consideration I had to take into consideration due to the abstract nature of my study, i.e. the focus on people's valued beings and doings (Cronbach & Meehl, 1955). Cohen, Manion and Morrison (2007), write that construct validity should be used when "validity agreement is sought on the 'operationalised' forms of a construct, clarifying what we mean when we use this construct" (Cohen, Manion & Marrison, 2007, p. 138). Construct validity required that I first had to ensure that the research participants understood the focus of the research and were comfortable to share their perspectives (see section 3.5 for informed consent). From the beginning of contact making, I had to start building a relationship with the research participants to put them at ease and encourage them to contribute freely and honestly. To ensure the research participants confidently expressed what they actually value for their beings and doings, I had to take extra time to ensure they fully understood the research process without any false expectations of what we aimed to achieve.

In my analysis and write up, I was guided by McGarry (2017), I aimed to avoid oversimplification, continued to provide space for the voices of the marginalised even during the indicator selection process, and contextualised claims to illustrate the complexity of the individual human experience within larger social realities. Furthermore, I resisted romanticising the participants' voices. The next section will discuss the data generation methods I used to collect data for my study.

Table 3.1 :Data generation activities

Data generation activities	No. of activities
Semi-structured interviews with established commercial farmers (in-person)	7
Semi-structured interviews with emerging commercial farmers (in person)	2
Semi-structured interviews with emerging commercial farmers (telephonic)	1
Semi-structured interviews with past resident of communal area (telephonic)	1
Focus group discussion with established commercial farmers	1
Focus group discussion with residents of communal areas	2
Documents analysed for understanding of valued beings and doings of residents of the communal areas	7
Documents analysed to understand what the Tsitsa Project RUIT regard as important for the Tsitsa Project	2
Key informant interview with Rhodes University Tsitsa Project advisor	1
Focus group/ToC discussion with RUIT	1
Workshops with CoPs to vote for chosen indicators (3 participants per CoP)	6
TOTAL	**31**

3.3 Research process and data generation methods

The research design for this study constituted of layers of collecting data, data analysis and feedback to verify understanding and getting further input from research participants. The research spanned over a 17 month period from February 2018, when I started with a document analysis, to July 2019 when the final workshops were held for indicator selection. The research started with a document analysis to understand what the valued beings and doings are of the residents of the catchment. This was followed up by individual interviews with catchment residents of different 'groups' of residents for whom little information was available. These steps were used to develop a basic understanding of the valued beings and doings of the residents of the catchment. Workshops were then held with groups available to verify my understanding of what their valued beings and doings are and to give them the opportunity to give further input and expand my understanding. This data was analysed and a list of potential indicators were developed. In the analysis of the data, I was not looking for differences between the different groups. Rather, I was trying to understand the underlying mechanisms present.

Parallel to the above process, a document analysis was done to determine what is important to the Tsitsa Project and what it wants to achieve. A key informant interview was conducted to verify my understanding of the goals and objectives of the Tsitsa Project, followed by two workshops with the RUIT to refine the Tsitsa Project's theory of change and what they want to achieve. A list of potential indicators was developed based on this process. The final step in the research was to conduct six workshops with the RUIT to select the indicators that were then compared to the valued beings and doings of the residents of the catchment.

Research activity	**Number of activities**	**Time period of which activities were conducted**
Document analysis for communal residents	4	March-September 2018
Semi structured interviews with established commercial farmers	7	July 2018
Semi-structure interviews with emerging commercial farmers	3	July – September 208
Focus group discussion with established commercial farmers (23 participants)	1	September 2019
Focus group discussions with communal residents (12 and 13 participants respectively)	2	October 2018
Document analysis for Tsitsa Project programme documents	7	February 2018-July 2019
Key informant interview	1	December 2018
RUIT theory of change workshops (7 and 9 participants respectively)	2	May and June 2019
RUITs selecting indicator workshops	6	June-July 2019
TOTAL	**33**	**February 2018 – July 2019**

Table 3.2 Summary of research process

Methods refer to the techniques used in a study to collect data (O'Leary, 2004). The methods used in this study were semi-structured interviews (both face-to-face and telephonic), focus group discussions, and document analysis. Refer to Table 3.1 for a list of the number of interviews and focus group conducted and documents analysed. These different methods will briefly be discussed below.

3.3.1 Semi-structured interviews

An interview can simply be described as a conversation with a purpose (Weyers, 2011). A semi-structured interview is an interview with a core set of questions that allow the researcher to ask the same questions to different research participants (which enable the researcher to compare interview data with one another) with the flexibility to probe into related topics that may come up during the interview. The aim of a semi-structured interview, sometimes also referred to an open-ended interview, can be used to develop an understanding of the research participants' experiences and worldviews from their own perspective (Brenner, 2006; Weyers, 2011).

A deductive approach was used to develop an interview guide. Questions were specifically designed to elicit information that would inform the theoretical understanding of the residents' own understanding of their valued beings and doings, conversion factors and structural constraints (Brenner, 2006). The interview guides were developed with the assistance of my supervisor, who helped me to carefully think whether the research participants would understand the questions, would not feel bombarded by theoretical jargon and would be able to share the information I asked for. Using an interview guide helped me to be consistent with the core questions I asked during the interviews and enabled me to compare the interviews with one another.

Two types of semi-structured interviews were used in my study, face-to-face interviews and telephonic interviews. Where possible, face-to-face interviews were conducted because this type of interview provide the best chance to gather detailed information. Face-to-face interviews are also flexible and allow the researcher to explore topics in more depth, they tend to elicit spontaneous answers and provide the researcher with the opportunity to respond to non-verbal cues (Weyers, 2011). However, where face-to-face interviews were not feasible, i.e. with residents who had left the catchment or farmers who do not permanently reside in the catchment, telephonic interviews were used. Telephonic interviews "tend to be more impersonal, provide the interviewer with less flexibility and control, and eliminate the opportunity to interpret and respond to non-verbal cues" (Weyers, 2011, p. 175). I conducted only two telephonic interviews.

3.3.2 Focus group discussions

Focus group discussions are a specialised form of group interviewing. I used this method because I wanted to answer specific questions (Frey & Fontana, 1991; Weyers, 2011) (see section 1.4). Focus group discussions enable the researcher to collect rich data from several individuals at once. Focus groups can also generate rich data because they can stimulate discussion and debate among participants and the researcher can observe the dynamics between the group members which was able to add to my understanding of what the valued beings and doings are for residents of the catchment. Conducting an interview in a group setting also assisted me in neutralising the power relationship between me as the researcher and the residents of the catchment (Frey & Fontana, 1991; Weyers, 2011). The focus group discussions did not follow a format of specific questions to be asked and answered. Rather, it presented findings from a document analysis and asked participants to respond to the findings. This is regarded a focus group discussion because the discussion was focused on a topic and I knew what information I needed and structured the conversation accordingly. This was particularly useful when I engaged with the villagers in the communal areas. This method was also suitable because I wanted to use the focus group discussions to verify my understanding of residents' valued beings and doings, their perceptions on conversion factors and structural constraints, obtained from the document analysis I conducted. I also wanted to use it as an opportunity to supplement my current understanding and for the residents to give additional input and correct any misinterpretations. Thus, the focus group discussions were important opportunities to validate data and as a form of member checking (Birt et al., 2016). However, I also had to be mindful of how group dynamics and relationships within the group can impact on the discussions taking place during the focus group sessions. Similarly, I had to take residents' perceptions of the research and the purpose of the focus group discussion into consideration (Frey & Fontana, 1991). Document analysis was an important research method that helped to prepare me to be able to conduct the focus group discussions.

3.3.3 Document analysis

Document analysis is a useful method to develop an understanding, get insight into and make meaning of the phenomenon being studied and the context (Bowen, 2009). I analysed relevant documents to develop an understanding of what the residents' valued beings and doings are, what conversion factors they perceive to help them achieve these valued beings and doings and what structural constraints they perceived as hindering them from doing so. It was an efficient method that enabled me to gather a large amount of data within a short time frame. The villagers in the catchment have already been part of several research projects (which produced many of the documents I analysed); by working with these documents I was able to prevent myself wasting their time by asking the same questions. Developing this understanding and insight helped to prepare me to ask appropriate questions during the focus group discussion.

I also analysed programme documents to understand what was important to the Tsitsa Project. These documents included the Research Investment Strategy 1 and 2. This analysis helped me prepare for the key informant interview with a senior Tsitsa Project advisor. For both these instances of document analysis, the documents were selected purposively. This careful selection of documents helped to shed light on the questions I had and the phenomenon I wanted to understand (Henning, 2004).

3.3 Data analysis: Modes of inference

To analyse the data collected, I mainly relied on deductive and qualitative inductive modes of inference. Modes of inference refers to the ways in which one draws logical conclusions from the data collected (Minnameier, 2010). Deduction is when one draws logical conclusions from the data gathered by subordinating a single case to an already known rule. This means that the researcher applies a tried and trusted understanding to a new case (Reichertz, n.d.; Rodrigues, 2011). To use deduction as a mode of inference, I used already existing concepts (valued beings and doings, conversion factors, and structural constraints) and looked for evidence in my document, interview and focus groups data that could be applied to these concepts. These existing concepts guided the choice of main codes that I used in the analysis of the individual semi-structured interviews, the document analysis and the focus group discussions.

Qualitative induction is the process of identifying features in the data and so that this combination of features resembles another feature (Minnameier, 2010; Reichertz, n.d.). By using this form of inference, I searched for evidence in the data that supported things that could be identified as valued beings and doings, conversion factors or structural constraints. Here I relied heavily on the definitions and descriptions of what is meant by these concepts to be able to identify concepts and evidence that would link to those definitions.

To identify these modes of inference, I used the guidelines proposed by Tesch (cited in Creswell, 2009:186), to analyse the data (making use of the software RQDA). These steps are as follow:

- Step 1: I read through all the transcriptions to obtain a general sense of all the data that was collected. Ideas regarding the data was written down as they emerged.
- Step 2: I started with the transcribed document of the first participant and systematically reviewed it in order to gain an understanding of the underlying meaning of the content. Again, the researcher wrote down ideas as it emerged. This step was repeated with all the transcribed interviews.
- Step 3: Once all the transcribed interviews had been reviewed, I made a list of all the topics which emerged. Similar topics were then clustered together.
- Step 4: Once the list of topics had been completed, I went back to the data and abbreviated the topics as codes. These codes were then written next to the appropriate segments of the text.
- Step 5: Next, I found the most descriptive wording for the topics and converted them into categories. I tried to reduce the number of topics by grouping related topics together.
- Step 6: A final decision was then made on the abbreviation for each category and the codes were alphabetized accordingly.
- Step 7: Then I assembled the data material belonging to each category in one place and performed a preliminary data analysis.
- Step 8: Finally, where necessary, I recoded the data.

3.4 Research site and participants

The research site was the Tsitsa catchment and the study population consisted of the residents of the catchment who engage in particular land use practices (being the focus of the Tsitsa Project) and members of their families who have chosen to leave the catchment but still maintain contact with it. The RUIT were also research participants who shared what they regarded as important to the Tsitsa Project and should be evaluated from that perspective. These residents of the catchment and the

RUIT are both stakeholder groups of the Tsitsa Project. In this thesis, the term ‘stakeholders’ is used to refer to all stakeholders of the project, residential to the catchment, implementing organisations, and government organisations. When referring to research participants, I specifically refer to either the Tsitsa Project residents (Chapter Four) or the RUIT members (Chapter Five).

For research participants from the residents of the catchment, I selected a small sample of commercial farmers, a forestry company, and residents in communal areas. Purposive and snowball sampling techniques were used to identify these participants. Purposive sampling is a non-random sampling technique used to find specific information from individuals who possess certain qualities (Tongco, 2007). Thus, I set out to find research participants who could share the information I needed by virtue of their knowledge or experience. I knew I had to get input from people who represent the different ‘groups’ of people residing in the catchment. As mentioned in Chapter One, the Tsitsa River catchment covers an area which consists of commercial farming and communal areas. In the commercial farming area, there are established commercial farmers and smaller, emerging commercial farmers and commercial forestry. These were the four land user groups important to my study. I also added the ‘absent’ group, people who no longer permanently reside in the area, but still maintain active connections with the catchment because many of them are still land users and, for example, keep livestock. After identifying the main groups, and key contact people in these groups with the help of two stakeholder analyses (Rivers et al., 2018; Sisitka et al., 2016) and the community engagement officer, I employed snowball sampling to contact research participants. Snowball sampling is also a non-random sampling technique used to access potential research participants through the accumulation of referrals from existing research participants (Noy, 2008).

For the established and emerging commercial farmers, I decided on a small sample size. A small sample was sufficient to develop an understanding of different valued beings and doings among the residents of the catchment. Even with a small sample size (three emerging commercial farmers and seven established commercial farmers), it was possible to identify similarities in what they shared. Most emerging commercial farmers do not reside in the catchment. Consequently, most of the emerging commercial farmers were not available to participate in the study and they could not participate in a focus group discussion. A focus group discussion was also held with the established commercial farmers. Fourteen established commercial farmers participated in this workshop. Only two had been previously interviewed. Two staff members of forestry were interviewed. Though a large land use area is commercial forestry, it all belongs to one commercial forestry company. The two staff members who engage most with the communities and other land users in the area were interviewed. Though these staff members were currently residing in the catchment, they were not from the catchment with family ties in the catchment like the rest of the research participants. This appears to have had in influence on their valued beings and doings in relation to the catchment.

One former villager was interviewed. Unfortunately, none of the other identified former villagers were willing to be interviewed. However, the one former villager was very insightful and gave valuable perspectives on the physical catchment and life in the catchment. His insights shed light on many potential underlying mechanisms.

Due to the significantly different characteristics of the different research participant groups, different research methods were used to engage with each. To gather data to develop an understanding of the valued beings and doings of residents the Tsitsa Project had not engaged with previously, semi-structured, face-to-face and telephonic interviews were conducted with established commercial farmers, emerging commercial farmers, forestry staff and one former villager who now lives elsewhere. I analysed documents of the research already undertaken with the residents living in the communal areas. Separate focus group discussions were also held with commercial farmers and communal residents as additional opportunities to gather data and as opportunities for member checking. Forestry staff were also invited to the focus group conducted with the commercial farmers but did not attend. It was not possible to conduct focus groups with the emerging commercial farmers and former villagers because they lived elsewhere. These four research methods were used to focus on developing an understanding of the catchment residents' valued beings and doings, as well as what is valued by the Tsitsa Project.

To understand the goals and objectives of the Tsitsa Project and how these may influence chosen evaluation indicators, I analysed the Tsitsa Project programme documents and held a key informant interview with a senior Tsitsa Project staff member. Members of the RUIT also participated in giving feedback into the development of the ToC model and could vote for their chosen indicators.

3.4.1 Semi-structured interviews with commercial farmers and staff of a forestry company

Commercial farmers and forestry were included in the research because they are significant land users (and thus stakeholders) in the Tsitsa catchment (Sisitka et al., 2016). To date, very limited engagement has taken place between the Tsitsa Project, commercial farmers and forestry. For this reason, there was very limited data available on commercial farmers and forestry that could be used to develop an understanding of their valued beings and doings. To develop this understanding, the commercial farmers association was contacted (purposive sampling) and the chair of this association agreed to contact farmers (including foresters) on my behalf and obtain their permission to be interviewed (snowball sampling). The contact details of the farmers and those in forestry who were willing to be interviewed were then shared with me. I contacted them and scheduled interviews at a time and place that was convenient for them. Seven commercial farmers and two forestry staff members agreed to participate in face-to-face semi-structured interviews. A few of the farmers' family members were also present during the interviews and added contributions with consent. All the farmers were interviewed on their farms and the forestry staff members were interviewed at their local head office.

To adhere to the ethical considerations of the research (see section 3.5), I took the following steps. Before the interviews were conducted, a letter of invitation (see Appendix 1) was shared with the participants. Participants then had the opportunity to ask questions and clarify anything that was still unclear to them. Once participants were satisfied that they understood what the research was about and agreed with its purpose, they completed an informed consent form (see Appendix 2), including consent to audio-record the interview. The interview was then conducted according to the interview guide (see Appendix 3).   No translator was needed for the interviews as all the interviewees were comfortable with conducting the interviews in English.

Later, reflection notes were written about the interview, capturing the main points. Audio files were saved onto a safe filing system (Dropbox) and backed up on my password protected desktop. These audio recordings were then transcribed using the transcription programme Temi (htts://www.temi.com). The transcriptions were manually checked, and errors corrected. The interviews were analysed using the R package for qualitative data analysis (RQDA) (htTsitsa Project://rqda.r-forge.r-project.org/).

Using RQDA, I followed an inductive and deductive analysis process (see section 3.8). The individual interviews were analysed by looking for emerging themes linked to people's valued beings and doings; personal, social and environmental conversion factors; as well as structural constraints. An analytic memorandum was kept for each individual category (see Appendix 4 for an example of a memorandum). After analysing all the interviews from commercial farmers and forestry, the codes of the interviews (valued beings and doings, conversion factors and structural constraints) were exported and saved. The memoranda were then analysed to identify themes within each category. I created a mind-map to visually display how the different themes can be grouped together and are related to one another (see Figure 3.1 for an example). A narrative was then written to explain how the themes on the mind-map are linked together.

The narratives were then used to create a second visual presentation of the valued beings and doings, conversion factors and structural constraints (see Figure 3.2). These presentations were created to tell a cohesive narrative to the commercial farmers and forestry and give them the opportunity for feedback on what was found during the interviews. This was an opportunity for member checking and for participants to disagree or agree with what was shared and give additional input. Before this feedback was taken to the commercial farmers, it was presented and discussed with my supervisor. Input from this meeting was taken into consideration to review the narratives and presentation. To double-check my interpretation of what the participants said, I linked direct quotations with my summaries of their interpretations.

Figure 3.1: Example of a mind-map for the code category 'structural constraints' as perceived by the established commercial farmers

A feedback session (focus group discussion) was arranged with the commercial farmers association to take place during their quarterly meeting. This was the most convenient time that had the least impact on their busy schedules. However, this meeting had its own time constraints and the association could only allow me limited time to give feedback to the farmers and get additional input from them. In order to prepare for the focus group, I asked the chair of the association to share a letter of invitation with the members of the association to inform them about the focus group (see Appendix 1). Before starting with the presentation, I explained the purpose of the research and how it fits into the greater Tsitsa Project. After making sure they all understood the purpose and aim of the research, I asked for their consent to proceed with the focus group. Again, no translator was needed. The participants spoke English and Afrikaans, languages in which I am fluent.

The narratives that were created for the different categories were presented to the commercial farmers and forestry. Different terms were used to explain valued beings and doings, conversion factors and structural constraints so that the participants did not feel excluded by academic jargon

(See Table 3.2 for an explanation of the terms that were used in the focus group). After each poster with a category was presented, the participants had the opportunity to give verbal input. They could agree or disagree with what was presented and give additional input on matters that were left out or misrepresented. Generally, the participants agreed with what was presented and had very little which they felt should be added or changed. They did, however, offer some additional comments which they added to the posters. Participants were also given blank cards on which they could voluntary add more comments, but none of them made use of this opportunity. Notes were taken throughout the focus group by my colleague who accompanied me for the field trip. These were used to capture and integrate the data from this focus group.

Table 3.3: Alternative terms used during the focus groups

Academic term	**Alternative term used in the focus group**
Valued beings and doings	Things that are important to you
Personal conversion factors	Personal things that help you to live a good life
Social conversion factors	Social things that help you to live a good life
Environmental conversion factors	Things in the environment that help you to live a good life
Structural constraints	Things that prevent you from living a good life

In order to avoid jargon that would have been unfamiliar and quite possibly confusing to participants, I referred to valued beings and doings, the things that you value and that you do, as "the things that are important to you".

3.4.2 Semi-structured interviews with emerging commercial farmers

Identifying emerging commercial farmers to interview proved to be a challenge. The chair for the emerging commercial farmers' association in the catchment (identified from the stakeholder analysis by Sisitka, (2016) seemed resistant to the research process and was reluctant to assist me with identifying other emerging commercial farmers who could be interviewed. Alternative ways of making contact with emerging farmers were then explored. Some of the commercial farmers contacted their neighbours who are emerging commercial farmers and asked whether they would be willing to participate in the research (snowball sampling). Two farmers agreed, but I was unable to schedule an interview with either of them due to their busy schedules. Both these farmers do not farm full-time and have other businesses. They also reside outside the catchment and could not be visited on their farms during any of my field trips. Emerging commercial farmers from the neighbouring emerging commercial farmers' association, though still part of the Tsitsa River catchment but further away from where the Tsitsa Project is actively working, were then contacted via the stakeholder analysis (Sisitka et al., 2016) and two farmers agreed to be interviewed (purposive sampling). However, due to the lack of meetings within the farmers' association, it was not possible to schedule a feedback session (focus group discussion) with either of them.

The emerging commercial farmers who participated in the study were contacted telephonically. I introduced myself and explained the purpose of my research. After they agreed to participate in the research, I scheduled a time and place for the interview. I also emailed them the invitation to participate in the research (see Appendix 1 and translated into isiXhosa in Appendix 5) to help them understand what the research was about. One farmer was interviewed at home on his farm, another opted to meet us in town for the interview and a third farmer opted for a telephonic interview. At the time of the interview, I explained the research again. Once they were satisfied with the explanation of the purpose of the research, they signed the consent form (Appendix 2 for English and Appendix 6 for isiXhosa) and give permission for me to make an audio-recording and then proceeded with the interview. For the telephonic interview, I emailed the invitation to participate in the research and informed consent forms to the research participant. He could not return these forms to me. However, at the time of the interview, I discussed the forms and asked for his verbal consent to participate in the research. I used the interview guide for the emerging commercial farmers (see Appendix 7) to guide the semi-structured interviews. I followed the same process to store and analyse these interviews (see section 3.4.1). All three the emerging commercial farmers were comfortable to conduct the interview in English, though a translator was available to assist.

Figure 3.2: Example of a visual presentation used to present data back to commercial farmers and forestry

3.4.3 Past residents of the catchment

I wanted to include past residents of the catchment in the study because many remain land users in the catchment. Many continue to maintain a homestead in the catchment or keep livestock. Therefore, understanding their valued beings and doings was important. It was difficult to identify past residents to participate in the research. The Tsitsa Project's community engagement officer has no contact with past residents and could not help me to identify research participants in this category. Residents of the catchment were also reluctant to share contact details of family members. Contact details for only two past residents were identified with the help of catchment residents (snowball sampling). Of these two, only one agreed to be interviewed telephonically with the help of a translator. I discussed the purpose of the interview with the translator beforehand, as well as the content and potential questions I might use during the interview. A speaker phone was used to conduct the interview. With the help of a translator, the interview was conducted in isiXhosa using the semi-structured interview guide for past residents (see Appendix 8). I asked the questions in English; the translator translated them to isiXhosa. The interviewee responded in isiXhosa and the translator translated his responses to English. When I made contact with the research participant, the purpose of the interview was explained to him and a time was scheduled to conduct the telephonic interview. Due to the participant not having easy access to Internet facilities, information about the research and the informed consent form could not be sent to him. On the day of the interview, with the help of the isiXhosa translator, the purpose of the research and the interview was again explained to the participant and he was given the opportunity to ask questions. The informed consent form was then explained to him, and he gave his verbal consent to participate in the research and for an audio recording of the interview.

Upon completion of the interview, the interview was transcribed in isiXhosa by the translator and translated into English. The interview was then analysed following the same process as with the commercial farmers and forestry (see section 3.9.1). Due to the difficulty in identifying past residents, and with them living far from the catchment, it was not possible to conduct a feedback session with this participant group. However, a visual presentation (similar to Figure 3.2) was created to explore and present the valued beings and doings, conversion factors and structural constraints of this participant group better.

3.4.4 Communal residents

In the Tsitsa Project, much research has been done in the communal areas including participatory mapping for restoration purposes by various members of the Tsitsa Project (Lunderstedt et al., 2017). To avoid asking the same questions to residents of the communal areas, a document analysis of these reports was used to identify valued beings and doings, personal conversion factors, social conversion factors, environmental conversion factors and structural constraints. Several documents were analysed (see Table 3.3).

Table 2.4: Documents analysed to prepare for focus groups in the communal areas

Group	Number of documents	Name of documents
Communal residents	7	Community Mapping Basoto Community Mapping Batlokoa Community Mapping Elangeni Community Mapping Northern Mpondomiso Community Mapping Upper and Lower Tsitsana Community Mapping reflection Science Management Reflection Notes

These documents were analysed using RQDA. While coding these documents according to the code categories, memoranda were created for each category. These memoranda were then used to create mind-maps of the themes identified within each code (see the example in Figure 3,1). Narratives were then written to give a coherent picture of the potential valued beings and doings, conversion factors and structural constraints of the residents of the communal areas of the catchment. Visual presentations with key concepts were then created to present to a selection of residents of the communal areas in focus groups. The 'user-friendly' version of these concepts (see Table 3.1) were translated into isiXhosa with the help of a translator and the community engagement officer and I created posters to use in the focus groups discussions (see Figure 3.3). In preparation for the focus group, the narratives were explained to the translator within the context of the research, as well as the context of the area.

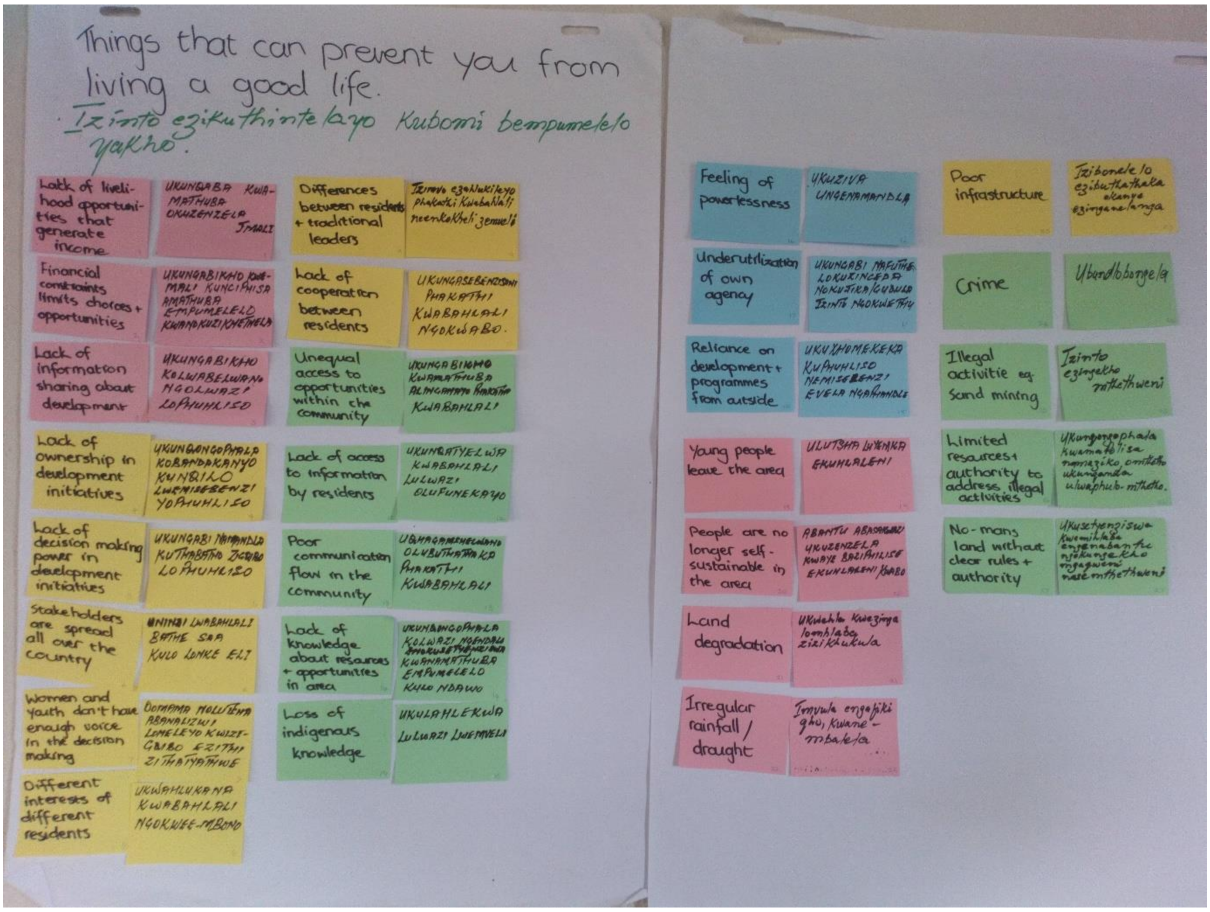


Figure 3.3: Poster of structural constraints presented to the residents of the communal areas

Two focus groups with communal residents in the catchment were scheduled with the assistance of the community engagement officer and a translator was used to assist with the process in both focus groups. The requirements and purpose of the focus group were discussed with her. Requirements included representation from the whole community (not only traditional leaders, especially women and youth) and working in an area where people have not already had to answer similar questions and might be suffering from research fatigue. Two communities were identified (purposive sampling). The respective traditional leaders of these two communities were contacted by the community engagement officer who explained the purpose of the research and focus group and asked for permission to conduct a focus group in their areas. After obtaining permission, a suitable day and time was negotiated. One of the areas that was initially identified was unable to participate in the focus group on a day suitable for the research team so an alternative village was found who agreed to the focus group.

3.4.4.1 Focus group 1

While we were waiting for the meeting to start, participants were handed the letter of invitation to participate in the research, translated into isiXhosa (Appendix 5). We were unable to distribute this letter to participants before because most of them did not have access to email and due to the remote location of the villages, these letters could also not be delivered. Though the letters were translated to isiXhosa, not all the participants were equally literate which further indicated the importance of explaining the research and the purpose of the focus group to the participants in detail and allowing time for them to ask questions and raise any concerns. However, at the start of the meeting there was confusion about the purpose of the meeting because the participants were told that we are coming to the community to hire people for the project. This was not the case and the purpose of the workshop had to be clarified with the participants. Participants were asked if they were still willing to participate in the focus group. They agreed and were asked to complete the informed consent form (isiXhosa version, Appendix 6). For those who were not literate of comfortable with writing, the option was available to audio-record their consent. None of the participants opted for this. We also asked for (and were given) consent to take photos during the workshop. In total, twelve people attended the meeting. Eight were women, two young men and two older men of whom, one was a traditional leader. All the participants participated throughout the focus group.

3.4.4.2 Focus group 2

The second focus group flowed more smoothly than the first one. This could be attributed to the participants who came because they were generally interested in what we had to share and were not misinformed about the research purpose. Thirteen participated in this focus group. In this focus group there were more men present. Four men were still in their youth, while four ranged from their mid thirties to retired. There were also five women present. Throughout the focus group, participants were actively engaged. I followed the same process of obtaining consent as in the first group (see section 3.4.4.1).

3.4.4.3 Structure of the focus groups

Due to the time it takes to give feedback to communities and for them to give feedback in return, the focus groups consisted of one activity. The focus groups started with an introduction to the programme and the specific research. Though this was also explained to the traditional leaders when we arranged the focus group, we had to ensure that the participants had been given the correct information about the focus group and that they had agreed voluntarily with a thorough understanding of what the focus group is about (see section 3.4.4.1 for the process followed). The translator assisted with translating everything I presented to the focus group participants into isiXhosa and translating everything they said from isiXhosa to English.

The rest of the focus group was divided into three parts. The first part presented initial findings to participants regarding valued beings and doings identified in the document analysis. This was presented to participants as the things and characteristics that are important to them as people as evident from what people had told researchers before. After the presentation, they were asked to first give verbal feedback of anything that immediately came to mind that they did not agree with or wanted to add. Based on the experience of the previous focus group with the commercial farmers, I expected the participants may not give much feedback. To encourage the feedback process, the group was divided into smaller groups of four to five people. Each person was given a blank card on which they had to write what was important to him or her that had not already been mentioned. The group then had to discuss the four or five (depending on the size of the group) most important things they associated as the things and characteristics they regarded as important to them.

Figure 3.4: Dabula, the translator, and I presenting my initial findings during a focus group discussion

Lively discussions ensued (see Chapter 4 for a discussion of the topics discussed). Participants did not hesitate to give feedback to the larger group. However, participants did not only focus on their valued beings and doings. Their presentations involved various topics, including valued beings and doings, structural constraints and conversion factors. The same process was repeated for the conversion factors and structural constraints.

Figure 3.5: Participants discussing what is most important to them during a focus group

The focus groups lasted three and three-and-a-half hours respectively. Participants had a break between the second and third part of the presentation. After the focus group, participants were served sandwiches and a cold drink as a courtesy and in keeping with the customs of the area.

Figure 3.6: A resident of the catchment giving feedback to the larger group from the break-away group discussion on structural constraints

3.4.4.4 Analysis of communal residents' focus group

All the cards with feedback were collected and grouped together according to similar themes. A mind-map was then created explaining how the different themes relate to each other. A narrative was then written to explore and present the data. This was done for each focus group. It was important to analyse the data from these focus groups separately because there were so many differences between the two focus group participants that could have influenced how they responded. For example, in the first focus group, the participants stressed the importance of development programmes coming to their community to help develop the local area. They also stressed the importance of getting jobs, with little mention of self-employment opportunities. These responses could have been influenced by the misinformation they had been given regarding the purpose of the focus group (that the Tsitsa Project were coming to the community to hire people to work for the project). The participants of the second focus group were not misinformed. This group stressed the importance of earning and income, but their focus was on getting help with starting income opportunities that can help people to become self-employed.

3.5 Consolidating the data

Once all the data was analysed as described in the sections above, the key themes were written onto sticky notes. These sticky notes were colour coded according to participant group, as well as code (see Tables 3.3 and 3.4). The feedback from the focus groups was also included in this process and categorised according to the codes.

Table 3.5: Colour codes for the participant groups

Participant group	**Colour**
Communal residents	Blue
Emerging commercial farmers	Yellow
Established commercial farmers	Green
Past resident of communal area	Pink

Table 3.6: Colour codes for code categories

Code category	**Colour**
Valued beings and doings	Red
Personal conversion factors	Purple

Social conversion factors	Brown
Environmental conversion factors	Green
Structural constraints	Orange

Data was taken from all the different participant groups and mapped out according to each category of codes (e.g. environmental conversion factors) to develop an understanding of the data from the different groups in terms of the residents of the catchment *as a whole*. The relationships between the different themes were also noted (see Figure 3.7). These mind-maps showed what participants said and how different themes were connected with one another. Common narratives threads typical of what was shared by the participants, were then written about these themes and connections. Primary data was used to support these claims and statements. Primary data from focus group feedback tended to be more cryptic and less descriptive than data from the interviews because of how feedback was captured during the focus groups.

The final step in this process was to identify the potential key indicators that would reflect the development of the residents in the catchment. To do this, potential 'key' factors were identified on the mind maps. A factor was regarded as key when it was:

a) mentioned by most or all the participant groups,
b) when it has been identified in this research as well as in other development programmes as key factors that impact on development, or
c) when it was a key connector in the mind-map that influenced many other factors.

Cards were then made for these key factors, colour coded according to their themes. These cards were then used to create a mind-map that could tell a story about how these key factors can play out in reality to impact, positively or negatively, on the lives of people living in the catchment (see figure 11). A narrative was then written based on this mind-map.

Figure 3.7: A mind-map consolidating data from the four different participant groups

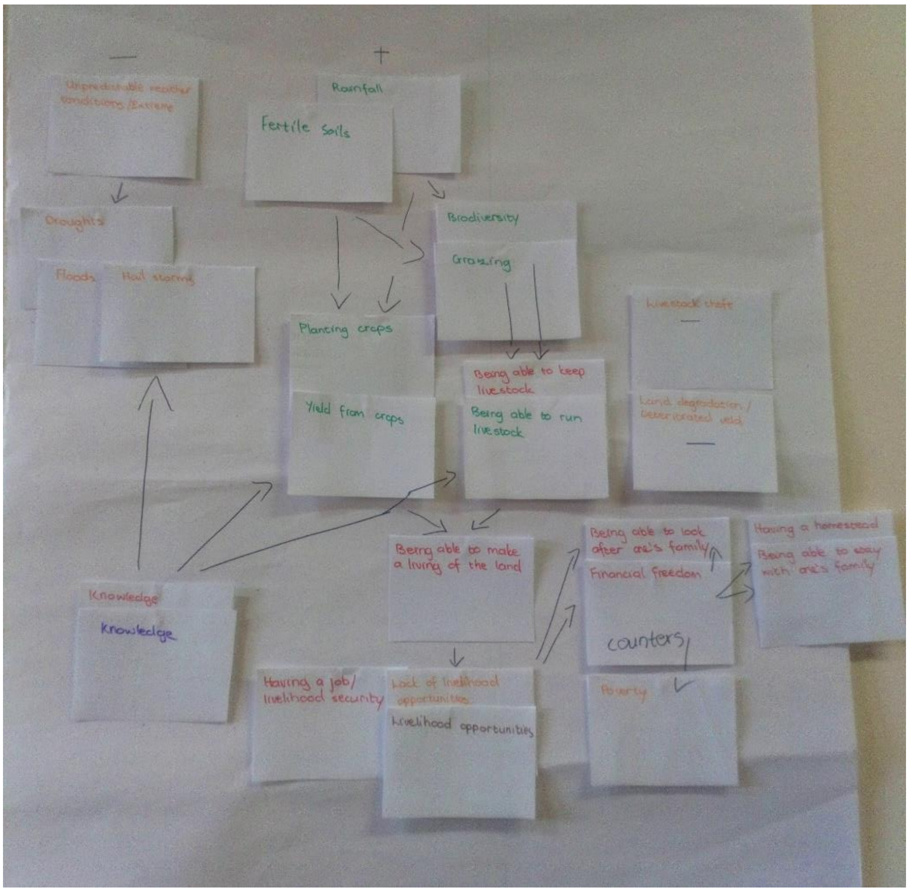


Figure 3.8: A mind-map linking key factors and showing how they can impact on the lives of the residents of the catchment

3.6 Tsitsa Project document analysis and key informant interview

In this section I describe how I gained an understanding of what is valued and regarded as important by the RUIT of the Tsitsa Project. A document analysis was done, followed by one key informant interview. Two key project documents were analysed, the Research Investment Strategy (RIS 1) (Fabricius et al., 2016) and the Tsitsa Project Research and Investment Praxis Strategy (v2) (RIS 2) (Biggs et al., 2018). These were considered the best documents to give an overview of the programme from inception (RIS1) to current project status (RIS2). I created an analytic tool to capture key themes that arose from these documents. Highlighted key points were copied onto the analytic tool under the heading 'themes'. After capturing this data from the documents, I carefully read through the key themes captured in the analytic tool and wrote my interpretations and understanding of what was being said about what is valued and regarded as important by the Tsitsa Project. Once this process was complete, I created a 'report and respond' template (Stronach & MacLure, 1997) that was used for a key informant interview with a senior Tsitsa Project advisor. This advisor has a good overview of the Tsitsa Project from the conceptual level through to implementation. His insights also came with years of experience working on similar projects.

A ‘report and respond’ template or questionnaire is a research tool that combines feedback based on preliminary data analysis with an invitation to research participants to respond to the statements presented on the template. The responses can be as open or closed as participants wish, ranging from simple agree or disagree statements, to elaborate comments or additions. This tool can be used to check validity of findings and elicit responses that can contradict preliminary or initial findings (Stronach & MacLure, 1997).

An unconventional interview was then conducted with a senior advisor to the Tsitsa Project using a report and respond interview structure. The interviewee read through the statements on the template and commented verbally to me on these statements, either agreeing, disagreeing or elaborating on them. The interview was recorded with the permission of the interviewee. This interview was then transcribed using the Temi software as before. This data was then used to create a revised summary of what is valued by and regarded as important by the Tsitsa Project.

With this understanding, I set out to start presenting the initial findings of what was regarded by the Tsitsa Project as important. This resulted in me developing a new version of the programme’s ToC (see Chapter Five). To test my understanding and interpretation of my findings, I convened a workshop with the RUIT. At this workshop, I presented my findings and interpretation of the Tsitsa Project ToC. Participants were encouraged to give their input on what they agreed or disagreed with and what changes they believed I should make to present a more accurate, according to their views, representation of what is valued by the Tsitsa Project. With this input, I adjusted the findings accordingly and used it for the next step – developing potential social indicators. This was an activity of knowledge co-construction that was in line with the participatory principles of my research project.

3.7 Developing and choosing indicators

With the findings on what is important to both the residents of the catchment (Chapter Four) and to the Tsitsa Project Rhodes University senior research team (Chapter Five), I developed potential indicators. To do this, I reviewed what was highlighted by the residents as important to them, what they valued. For each factor which they valued, I developed an indicator that could monitor that factor from their perspective. A similar process was followed for the findings from the RUIT. Based on the findings from the document analysis and key informant interview, as well as the feedback from the RUIT, potential indicators were developed for each factor that they regarded as important. A list was then compiled of all potential indicators. The indicators developed from the perspective of the residents were printed in normal print and the indicators developed from the Tsitsa Project programme material were printed in italic. These indicators were then categorised according to the change domains of the Tsitsa Project. These change domains were originally identified by the PMERL team (Botha et al., 2017). The change domains according to which the potential indicators were grouped together were:

a) livelihoods and well-being,
b) access,
c) agency,
d) land-use management, and
e) governance.

Within these categories, indicators that were similar were then grouped together. The CoP leaders from each CoP (governance, sediment and restoration, livelihoods and eco-system services, grass and fire, systems dynamics, knowledge and learning) were then invited to vote for their preferred indicators. A special vote was also granted to the community engagement officer due to her specialised knowledge of the catchment and the residents of the catchment. The voting worked as follows: each CoP could vote for their top three indicators, marked as number one, two and three. Each CoP then also got additional votes. Two votes for indicators they think their CoP should vote for and two indicators they think should be monitored but not by them. After voting was complete, weights were assigned to these votes. This process was not intended as a statistical analysis, but rather to encourage critical reflection among the RUIT to enable their participation in the construction of a list of priority indicators. These weights were:

- First choice: 5
- Second choice: 4
- Third choice: 3
- Additional votes: 1

These weights were assigned to reflect the weight of the perceived relevance of the chosen indicators. The scores for the indicators were then added up and the top indicators were identified.

A change pathway was drawn up, based on the understanding of what factors are important to residents of the catchment that will facilitate change. The top indicators were then matched with a factor in the change pathway that it could measure. These indicators were then cross-checked to see whether they also covered the important factors identified by the Tsitsa Project's ToC as understood by the RUIT during the workshop (see Chapter Five). The wording of the indicators was then refined to ensure it was suitable for use as an indicator.

3.8 Conclusion

This chapter reviewed the methodology and the methods and process used to conduct the study. I addressed the implications of critical realism and the capability approach for my research design and how participatory principles were used. I discussed my researcher position and reflexivity and how it influenced my researcher stance. I discussed the ethical considerations that guided me through the research process and the steps I took to ensure trustworthiness, authenticity and validity. The methods for data generation and analysis were then discussed at length. In the next chapter, Chapter Four, I will present the findings of the valued beings and doings, of the residents of the catchment. This chapter will also present the structural constraints and conversion factors experienced by the residents of the catchment.

Chapter 4: Findings on Valued Beings and Doings of Residents of the Tsitsa River Catchment

4.1 Introduction

This chapter answers the questions *What do residents of the Tsitsa catchment regard as valued beings and doings?* and *What factors support or prevent the development of people's capabilities from the perspective of the residents?* Thus, what are the conversion factors and structural constraints according to the perspectives of the residents of the catchment? These questions are answered based on the findings of the data gathered from the different participant groups in the catchment. These participant groups were communal area residents, a past resident of communal areas, emerging commercial farmers, commercial farmers and forestry. The results from the different participant groups are presented together as a unit. The motivation for presenting the data together is the research project wants to understand the valued beings and doings, together with the conversion factors and structural constraints affecting the residents of the area *as a whole*, given the purpose of developing *overall* social indicators. The aim is not to compare the different groups with one another but rather to get a holistic understanding of the area and what is important to people in the area as a whole. Though I present the data from the different participant groups consulted as a whole, I will make use of codes to identify the origins of the data presented (this means that, if necessary, comparisons or disaggregation could be done at a later stage). The codes are presented in Table 4.1 below.

Table 4.1: Codes for research participant groups consulted

Participant group consulted	**Code**
Communal areas residents Workshop 1	WS1
Communal areas residents Workshop 2	WS2
Past Resident of communal area	PR
Emerging commercial farmers	ECF
Established commercial farmers	CF
Forestry	F

I start with a presentation of what the residents of the catchment regarded as their valued beings and doings. This is followed by what the residents regarded as the personal, social and environmental conversion factors affecting their ability to achieve their valued beings and doings. The structural constraints as perceived by the residents are then presented. I conclude the chapter with a summary of the most significant factors identified that influence residents' capabilities and functionings.

4.2 Valued beings and doings

The core concepts of the capability approach, as discussed in Chapter Two, are capabilities and functionings. Capabilities can be described as the real freedoms or real opportunities available to people. Capabilities do not refer to people's access to resources to achieve certain levels of satisfaction. These capabilities comprise of people's beings and doings. Beings refer to things that people are, such as being nourished, being knowledgeable or being part of a supportive community. Doings refer to things that people can do, such as caring for one's family, keeping livestock or working the fields (Robeyns, 2017). This section presents what the residents of the catchment perceived to be their valued beings and doings.

Residents of the catchment value their identity of being farmers, being people who make a living off the land. This includes being a commercial farmer, small-scale farmer or subsistence farmer. This identity is closely connected with the place where they are residing and making a living from the land.

> I am just an African boy who was born not far from this place. Just across the river. I was born and bred there. (ECF1)

Commercial farmers also echoed this valued being of being from "this place" and having a history in the catchment.

> I farm on our family farm … this particular farm has been in the family since 1882. I was born here, grew up here. (CF2)

> I'm a fifth generation farmer in X. My family moved here in 1888 and they were one of the first pioneers in this area. (CF3)

Even past residents who now live and work elsewhere, valued their close connection to the catchment and regarded it as their real home.

> Yes, I am born and bred in that place [the village in the catchment]. Here [Pretoria] it is just a work place. (PR1)

Thus, people shared a deep sense of connection with the area from which they come. This was connected to making a living off the land and having a connection with the physical landscape, as well as with family history in the area. One commercial farmer described this connection as follows:

> In X the family's been there for 150 years now … so, the soil's in our blood. (CF2)

This identity which the residents value, is connected with their livelihood and how they make a living even if they have other sources of income. As this past resident explained, having livestock can be an additional financial help in times of need:

> Yes, keeping livestock is very much important because this can always be of great help in times of financial constraints. (PR1)

The importance of keeping livestock was also echoed by the communal residents during the workshops. Keeping livestock has deep cultural significance to residents as well as being of financial value. The latter link livestock and the ability to make a living of the land with people's livelihood security (Coetzee et al., 2005; Musemwa et al., 2007). Farming was an important valued being and doing that came up across all forms of land tenure - among the established commercial farmers, the emerging commercial farmers and the communal residents. Participants from each of these groups expressed an emotional connection to the land and a feeling of place. It was interesting that ownership of land did not surface in the communal workshops and these particular participants did not indicate that they would value ownership of the land.

Being able to enjoy livelihood security and earn an income was frequently mentioned by participants (WS1, WS2, PR1, CF1, CF2, CF4, F2, F1, ECF2). Being able to earn an income and enjoy financial independence is important because residents are then able to meet their own and their families' financial needs. A participant described the relation between a good life and livelihood as follows:

> A good life is being able to sustain yourself financially. When you need to and when you have to. Being able to afford what you have to afford. (F1)

A secure livelihood is particularly important for residents in terms of being able to take care of their families, especially being able to give them a good education, as explained by this resident during an interview.

> That [I can] get my daughter the best education that the area can offer. (F2)

A good education was seen as a means with which one can further oneself in life and access opportunities (WS2, CF3, ECF1). An income specifically, was seen as something which could enable you to achieve other capabilities and functionings which are valued by the residents. A good life that will enable you to live a life you value and have reason to value was described by a resident as follows:

> Like money, money, money. If I can have money and do what I enjoy doing. (ECF2)

For this above emerging commercial farmer, having access to money could enable him to expand his farming activities to do what he enjoys doing in agriculture. Being financially secure or having access to financial resources was seen as something which could help residents achieve their valued beings and doings (WS2, ECF1, ECF3). It was also described by the past resident as important.

> The land or soil we do have back at home. The only problem is resources or equipment to work the land and even plant vegetables. Like for instance to have support like getting a tractor that would make things easier for us. (PR1)

This sentiment was echoed by an emerging commercial farmer who explained how access to money can help him become the dairy farmer he would like to be.

> My intention is, [if] I can get some money, I want to buy some dairy cattle. I want to plant some grass for them if I can get the irrigation up to do that. (ECF3)

Thus, being financially secure and having a livelihood was regarded as very important and a factor that can help you to further actualise what you value being and doing.

Earning an income from an occupation was not residents' only motivation to practise the activities that enabled them to make a living of the land. Residents value being able to work on the land and with animals (WS1, WS2, CF4, CF2, ECF2, ECF1). They are proud of what they do, have a passion and find pleasure in what they do as described by this emerging commercial farmer:

> I'm looking after my cattle and they are super well. Very good and then you take them to the market, and they are winners there. You enjoy looking at them… The first thing in the morning, you wake up and go [to the cattle] and you enjoy it. You enjoy it and at the end of the day it gives you money. (ECF2)

Residents also value having the personal characteristics that enable them to work that entails more than simply wanting money, such as being hard working, self-disciplined and having a good work ethic.

> I think that I'm fortunate that I know how to work. You know, I'm not scared to work. (CF3)

An emerging commercial farmer also stressed the importance of being motivated and staying motivated during difficult times.

> For a person to be motivated. You should not be motivated by others. You should be motivating yourself. More especially during difficult times. When there are a lot of challenges. (ECF1)

Having this self-discipline and motivation is necessary to keep going during the tough times and to believe in the good that comes after, as described by this resident.

> It is cold in winter. We are used to that cold, the snow. You have to look after your livestock too, but you know when that snow comes, that rain is coming too. (ECF2)

This also links to knowing the landscape, the climate and the challenges that one has to overcome to be able to make a living in the area (discussed later).

In addition to having the livelihoods to be able to meet one's needs and live the life one values and has reason to value, residents valued being knowledgeable. Residents value having knowledge and being knowledgeable because they regarded it as something that equips one to deal with the challenges one encounters (CF2, ECF2). In talking about what a resident would do if he had the financial resources, one pointed out that he would also need knowledge to know how to deal with problems one can encounter. This includes having cultural and experiential knowledge and skills.

> For me, firstly, it would be the livestock that I would think of. That is what I love mostly. That is what I would take. It is the livestock that can make one's life better or improved. Like when there would be an immediate financial problem, one could take from the animals and barter or sell to get relief from that problem. You would have no problem when you have livestock but then the animals can also give you problems. Hence, one has to look well after them and have knowledge on how to keep them in a healthy condition. You must know how to keep them well all the time. (PR1)

Having knowledge that can contribute to your livelihood was mentioned by three of the four participant groups consulted (CF5, CF3, CF1, ECF1, PR1, ECF2, WS2). Being knowledgeable was valued as a conversion factor that can enable one to live a life one values and has reason to value (discussed in more depth in section 4.3).

Residents were not only connected to the catchment for its physical characteristics. Being connected to the place the residents regard as home is important for the connection to one's family and the community at large. Residents value being able to live with their families and spend quality time with them.

> To have a home that is permanent… To be able to be and live with your family. (WS1)

Yet, many of the residents end up leaving the catchment in search of a livelihood that can offer them a better income. However, despite leaving in search of a better livelihood, the catchment and the village they are from, remain "home" to them. A past resident now living in a city had this to say about moving away from the catchment in search of a better livelihood:

> There is no happy life here in the city. More especially us who come from the villages. One other thing is that I love my home [the village in the catchment] very much. Here in the city I am just staying because of employment. It is a forced stay for me here. I have no choice. (PR1)

Thus, it seems that if residents can freely choose a life which they value and have reason to value, they would choose to stay in the catchment with their families. They leave because of a perceived lack of choice. It is important for residents to have a place called home, a place where they feel they belong and to which they are connected through family ties.

> My home in the village is still my home. Here is just a workplace. I only come here to work … I love being at home. I really feel happy when I'm at home. It is very enjoyable to be home. I would be so happy if I could find a job at home or even nearer. (PR1)

Apart from valuing being able to live and be with family, the residents valued being able to live in a place that is serene and beautiful.

> We've got a lot of wetlands in the area. So, obviously a lot of nature and with the plantations and beautiful wildlife. (F2)

This was also stressed by other residents (CF2, CF6) and was regarded by some as the most beautiful place in the country (CF5 and feedback from workshop with commercial farmers).

In addition to the natural beauty, the area also offers a lifestyle that residents value. The residents value living a peaceful lifestyle where they can enjoy safety and security. Living in a place where they can live a life free of crime.

We want people to stay safely in their homes. (WS1)

It's just like calm, quiet and stable. So, it's not terribly exciting. Yeah, but that means it's safe. (CF6)

Together with this peaceful lifestyle, residents value having a sense of belonging to a community and being able to make a contribution to that community and help others and be helped by others (ECF2, PR1).

I'm a responsible human and I have a responsibility to the environment, the animals around me, the people around me. I'm responsible for seeing… what I can do. (CF2)

Being part of a community, people value the characteristics of being cooperative, friendly, approachable, honest, humble and having good relationships with others.

Oh yeah, he's a great man. He's very honest and a hard worker … nice. (CF7)

I think all farmers are humble … I don't think any of us blow our own trumpets. (CF5)

For me there is nothing as good as working co-operatively and in good relationship with one another in any situation of workmanship. Whether it be in a family or community situation at large. (PR1)

Being part of a community was also reflected in the value residents put on being valued and respected as individuals. This was a theme frequently mentioned by the residents, especially among those who felt they lacked being valued and respected. This included being treated as equal partners in development processes, being able to make their own decisions and have a voice in development and the decisions that affect them. They value being listened to and being respected (WS1, WS2, ECF1, ECF2).

As mentioned earlier, being able to make a living off the land, and in particular to keep livestock, is important to all the groups I engaged with. To some degree, it forms part of or contributes to their livelihoods and financial security as well as their cultural way of life. Being able to enjoy livelihood security or financial freedom was mentioned by all the participant groups. Regardless of how people live, they are dependent on an income for their day to day survival and basic needs, such as food, education, and healthcare. A higher income is associated with more freedom to be able to utilise resources. Participants regarded it as important to be able to have knowledge to be able to make informed decisions. Being owners and equal partners of development with a voice that is respected was mentioned by three participant groups. Participants regarded it as important to be able to look after one's family. This was related to their income and being able to stay with their families in the catchment where they can have a home that is permanent. Family forms an important aspect of participants' identity. Personal safety and security were important as well as livelihood security. The importance of this was mentioned by all four participant groups.

4.3 Personal conversion factors

Conversion factors, according to Robeyns (2017), are those factors that influence the freedom a person has to convert the characteristics of the resources available into functionings. Personal conversion factors are those conversion factors that are internal to a person. This includes characteristics such as intelligence, literacy skills or physical abilities. The personal conversion factors identified by the residents of the catchment mainly centred around two themes: the ability to utilise knowledge and being able to motivate oneself to achieve what one wants to achieve.

The ability to utilise knowledge was a central theme. This ability is connected to a variety of different knowledges that people need to unlock the potential of the resources available to them and convert these resources into functionings. One theme that emerged was the ability to utilise knowledge around natural resources, climate and agriculture. The focus on being able to utilise this type of knowledge could be connected with the strong focus of the residents of the catchment on being able to make a living from the land. Residents stressed that it is important to understand the climate in which one is farming. Understanding the climate and the weather conditions enable one to deal with the challenges they bring. In talking about the challenges of climate in the area, one farmer explained the value of experiential knowledge as follows:

> I think also experience … when you get to winter and you look at the veld this time of year and you think you can't imagine what … rain was like. Areas complaining about drought where we get all our rain in possibly four months of the year and then, now, winters we get nothing. So, in the beginning, the winters were quite daunting, but once you've survived a few years in, you know you've done it before, and you can do it again. (CF2)

This knowledge and experience of the climate, together with knowledge and experience of the landscape, can help people to convert the characteristics of the landscape into a functioning of making a living off the land. Talking about the unique challenges of the landscape and climate in the area, a farmer argued that it is one's in-depth knowledge of the local area that can help one make a successful living.

> I think every farm has got to evaluate on its own merits what it's got … each area has got its weaknesses and its positives which you have to discover. (CF1)

Thus, having experiential and in situ knowledge and understanding of the climate and landscape can enable people to unlock the potential of the areas in which they live. Indigenous knowledge and experience with indigenous practices, such as keeping livestock, can help people to create a livelihood in the catchment. To be able to keep livestock successfully and reap potential financial benefit from this, it is necessary to have the indigenous and experiential knowledge of how to do it, as described by this participant:

> For me, firstly, it would be the livestock that I would think of. That is what I love mostly. That is what I would take. It is the livestock that can make one's life better or improved. Like when there would be an immediate financial problem, one could take from the animals and barter or sell to get relief from that problem. You would have no problem when you have livestock but then the animals can also give you problems. Hence, one has to look well after them and have knowledge on how to keep them in a healthy condition. You must know how to keep them well all the time. (PR1)

Knowledge about the natural resources, landscape and climate alone is not enough. To be able to fully utilise the natural resources, knowledge of technology to help you unlock the potential of the resources available can enable one to convert the resources into functionings. A farmer described the importance of this during one of the interviews.

> Well, I mean we've got … a good grazing system, and then, in terms of the … crop side of things … one always keeps in mind soil erosion, you also tend to use chemicals or chemicals that are, uh, let's call it a favourable for soil. It doesn't harm the soil as much … but having said that, one also needs to use the technology that's out there in terms of chemicals to, improve your, your yields and genetically modified crops or varieties and such. (CF4)

Ongoing capacity building is needed for farmers to understand the complexities of the area and the opportunities available to them. Capacity building was seen as something which would stimulate people's motivation and commitment to make a living off the land as described by this emerging commercial farmer:

> You see, through the training, that is where you load the commitment from farmers. That's where we develop the commitment from because maybe why the farmer might not have the commitment now is because of lack of capacity. (ECF1)

With better capacity to be successful in making a livelihood of the land, residents can potentially see better results, which would further motivate them to seek a living off the land. Having better knowledge and understanding of the landscape and how technology can impact on livelihoods can further motivate residents to invest in sustainable practices to ensure a future for them and their children. The ability to utilise knowledge and experience of business principles can further enable people to convert resources into functionings. One farmer described this as one of the key factors contributing to his success.

> I basically adopted [the philosophy of] farming is not farming. Farming is like having a Spar in town. Farming is a business. So, every decision you take, it has to be a calculated decision. So, that's where the whole, my concept works around that. (CF1)

It is not enough to know how to grow produce and run livestock, residents also need knowledge and understanding of how to market and sell their products to make a livelihood from the land.

Residents of the catchment highlighted that in order for them to utilise and convert the resources in the area to functionings, they need to have knowledge and an understanding of what is happening around them in terms of development, as well as of the advantages and disadvantages of development initiatives. The communal residents stressed that it is important for them to know what is happening in the catchment, what development agencies are planning and how this will impact on them positively or negatively.

> It is good to know about [the] advantages and disadvantages of our development. (WS1)

In addition to having knowledge, other personal characteristics were regarded as important to enable people to utilise the opportunities available to them to convert resources into capabilities and functionings. One emerging commercial farmer stressed the importance of being able to motivate oneself, especially in the face of challenges.

> For a person to be motivated, you should not be motivated by others, but you should be motivating yourself. More especially during difficult times. More especially when there are a lot of challenges. (ECF1)

Other characteristics that were regarded as important were being hard working, committed and consistent in what one does. According to residents, to continue working towards your goals, one needs perseverance, determination and self-discipline:

> As a person [you should be] willing to put your shoulder to the wheel and follow your dream. (CF1)

> I think if you follow the footsteps, no matter what you do, I feel you'll always be a step ahead of someone else if you're prepared to put in the commitment and consistency. It is easy to start, but it's difficult to carry on. (CF2)

The willingness to work and having a sense of pride in one's work can help enable one to achieve what one wants to achieve in life.

> I think I'm fortunate that I know how to work. You know, I'm not scared to work. I think that's something that not everybody has. They are not born with it. (CF3)

Furthermore, a person's personal outlook on life was seen as something that can help convert resources into achieved functionings. A positive outlook in particular was seen as something that can help one to overcome one's challenges and motivate one to achieve what one wants to achieve.

> One just has to remain positive and … make the most of the opportunities that you've got … What I mean is just being positive about farming. So, just if you're going to sit back and let everything get to you and not move forward, then you're going to be left behind. (CF4)

Having a positive outlook on life can enable one to overcome fear of the unknown future and have a willingness to explore new opportunities and possibilities of how to convert resources into achieved functionings.

In summary, personal conversion factors were centred around having knowledge and other personal characteristics such as psychological grit. These factors were regarded as important because of how they impacted on residents' ability to make a living of the land. The more knowledge residents had of the landscape, climate, doing business and technology, the better they were perceived to be able to successfully earn a livelihood off the land. This was complemented by personal characteristics of being hard working, motivated, having perseverance and determination and having a positive outlook on life. In addition to this, the more knowledge residents had and the more they could see positive results in their livelihoods, the more this was likely to strengthen certain personal characteristics such as motivation and commitment. Thus, people need a combination of knowledge and psychological grit.

4.4 Social conversion factors

Social conversion factors are those factors that stem from the society in which one lives. Such conversion factors can include public policies, social norms, power relations and societal hierarchies to only name a few (Robeyns, 2017). Some of the social conversion factors that were discussed by the residents of the catchment may be interpreted as personal conversion factors. I decided to classify a conversion factor that influenced the society in which people live, as social conversion factors.

Two of the social conversion factors appeared to be connected with many other social conversion factors and to influence how many other factors in society functioned. These were: having a sense of being part of a supportive community where one is respected, and strong social networks. Having a sense of being part of a community where one is respected was connected with people's sense of *Ubuntu*. An emerging commercial farmer described the value and importance of good relationships and a sense of community with his neighbouring farmers as follows:

> We have got white commercial farmers who farm next to us. The border is just a fence. They farm and they tell us. G comes all the way from Z to come and teach us about potatoes. How to plant them, how to look after them. He will tell us he is going to plant potatoes because of one, two and three. Then he will tell us, he is going to stop potatoes now and plant maize because he wants to rest his soil because of one, two and three. Then he will tell us, now I am going to buy some sheep because I have seen there is a lot in wool and I see this opportunity so I am going to farm with sheep and then sell them after. Now we are selling cattle. We have good relations with the white farmers next to us. Even if you go to Z, they work well with the black farmers. It is a very good thing that we appreciate our neighbours who are white farmers that are willing and able who are assisting us as far as technical information. (ECF2)

This sense of community, or at least good neighbourliness, is also supported by residents in the catchment when they feel they share a similar identity and have the same hopes and dreams. It seems like these shared hopes and dreams can encourage residents to work together. Farmers also spoke of a willingness that exists in their communities to provide each other with social support. As described by these two farmers.

> We've got good people that live in the area. It's a very strong community, very supportive of each other. (CF2)

> They are lovely, supportive people. (ECF1)

Having community support seems to be complimented by residents' perceived willingness to cooperate.

> For me there is nothing as good as working co-operatively and in good relationship with one another in any situation. Whether it is in a family or in a community situation at large. (PR1)

This willingness to cooperate could potentially be related to residents' perceived willingness to attend meetings. Attending meetings was perceived as important because it provided the opportunity to discuss matters among each other and talk things out and cooperate with traditional leadership in the area.

> Attend meetings to discuss amongst each other to talk out things. (WS1)

> One positive about our people is that they always gather together to discuss and try to resolve issues of a serious nature. (PR1)

> Working together with leadership in our area. (WS1)

Coming together as a community to address common concerns was perceived by community members as something which could help them to address problem areas and potentially create the change they want to see in their community. They also noted that not everyone is willing to work together (discussed under structural constraints, section 4.6).

In line with having a sense of community, having strong social networks was highlighted by residents. This seemed particularly important because it was connected with many different aspects of how their communities function. Having good social networks was perceived to potentially enable one to learn about new opportunities. Residents highlighted that it was very important to them that they know and understand what is happening around them.

> Knowledge and understanding of what are happening around us. (WS1)

Having knowledge and understanding of what is happening around them can inform community members about the different activities that are taking place and where potential opportunities are. Residents residing in the communal areas were especially desperate to learn about opportunities that could lift them out of their conditions of poverty. Attending community meetings and having strong social networks in communities was perceived as something that can help residents gain this knowledge and understanding and access opportunities that can better their lives.

Meetings with constructive outcomes require good communication between residents. Good communication is important as is cooperation between community members to hear each other's concerns, identify a common goal and work towards it. Residents described the importance of this as follows:

> We've all got the same issues. We all want the same things and are working together going to the same safe future for our children… if it was facilitated better … we would all get there if we're allowed to and we didn't have people stopping us. (CF6)

However, common goals are sometimes missed because of internal politics. Despite this, others perceived residents as willing to participate and work towards creating a better society for all.

> So, the positives of working with those rural communities is that willingness that F1 is talking about. Their willingness to preserve their nature [the natural environment where they live]. They are willing to assist in that. (F2)

> The willingness of every community member to participate in the betterment of society. (WS2)

Other factors like communication, 'democratic voices', opportunities to participate and access to information and knowledge, are needed to enable people to do this work. Residents described the importance of access to information and knowledge about development as follows:

> It's good to know about the advantages and disadvantages of our development. (WS1)

> We have missed many chances of improving our lives. Maybe if one could get funding support to own a project of whatever kind. At times we do not even know where to go for assistance. Should we go to the municipality or the departments to ask for instance a poultry project or even an agrarian project? I think these would help us sustain ourselves. (PR1)

Residents felt that often when development organisations come to them, these organisations are not honest about what they are going to do and how it will impact on them. A proposed project to construct two dams runs the same risk. Residents felt they needed comprehensive information about all aspects of projects and potential opportunities for them to be able to make informed decisions (WS2).

Access to education was mentioned by multiple residents (CF2, CF3, CF6, PR1, F1, WS1, WS2, ECF1). Access to quality school education is important for people to be able to convert resources into capabilities and achieved functionings, so is government supported training facilities for skills development and opportunities for capacity development and lifelong training. Residents spoke about the importance of education as follows:

> One needs to be educated – formal education. One could miss chances of employment because of lack of education [needed for a job]. (WS2)

> Education plays a big role. Education plays a big role because as a farmer you must keep on reading whatever is associated with farming because a lot of capacitating [comes] from reading. You need to capacitate yourself. If you see papers related to farming, if there are any radio programmes that will assist you, listen to them. If there are any TV programmes that are always in place, focus on them because they will capacitate you. Have information sharing with other farmers. (ECF1)

> Training opportunities, yes. The department usually take some of the farmers to FK for a period of ten to fourteen days just to keep on capacitating them on the varieties of our produce. (ECF1)

> Government training facilities are needed for welding and electricians etc. (WS2)

> [Without education] there is no future for anybody besides as labourers and people don't really want to be labourers anymore. (CF3)

In discussing further how the poor quality of education is impacting on farm workers' ability to keep up with technological innovations in agriculture, a commercial farmer gave the following example of how a lack of technological literacy limits employment opportunities.

> You know, all the tractors got a GPS. So, it is a thing you have got to understand. You have to understand what the GPS says. So, you know, your staff can't operate the harvester, or the sprayer or the planter. So, I ended up doing all that myself. (CF3)

Education and training can have an impact on livelihood opportunities. However, livelihood opportunities are impacted on by policies from government. Government investment and supportive government structures can also create a conducive environment for self-employment where people can generate livelihood opportunities for themselves. Residents had the following to say about the importance of government support and an environment which is conducive for self-employment.

> Government support, government support. If I could get government support that would be good for me here. For instance, my farm needs boundary fences and grazing fences, arable land fences. I'm doing it slowly on my own. The fences are rotten there. If I could get government support in fencing and in irrigation and [then] you leave me alone. Just the fencing of grazing lands, arable lands and extend that irrigation to just 50 hectares and then you take all your things and you go. (ECF2)

> [We need a] conducive environment for self-employment. (WS2)

For these residents, more government support to help them start up self-employment opportunities would help them to become financially independent. Support from government, civil societies and corporations was also seen as something that can facilitate access to resources needed for development programmes and livelihood opportunities that can stimulate livelihood opportunities. In the communal areas especially, residents felt that development projects and access to funding for development initiatives would help them to achieve their valued beings and doings.

> Development projects/ the availability of projects. (WS1)

> [We] would like to have assistance of funding to do these things that are of importance to us. (WS2)

Residents also frequently spoke of the importance of and need for employment, especially the communal residents who are most affected by unemployment (compared to the commercial and emerging commercial farmers and forestry employees).

> To get employment and have money. (WS2)

> The importance of employment. (WS2)

> I think there should be job opportunities in our areas. (WS1)

> To have jobs to prevent poverty. (WS1)

> To have a job to satisfy our needs and wants. (WS1)

However, the opportunities for employment and other livelihood options are perceived to be very limited despite their perceived willingness to work.

In summary, having a strong sense of community was an important factor highlighted by all the different participant groups. In a sense, it is also foundational in that it is connected to other central features such as cooperation within the community and working together for the betterment of the community. Similarly, strong social networks were connected with many other factors in the community, as well as with people's ability and willingness to participate in the betterment of society. For residents to participate in the betterment of society, they need access to and knowledge of opportunities. Knowledge sharing was highlighted by three of the four participant groups. Furthermore, it speaks to people's livelihood outcomes and could potentially enhance their capability to make a livelihood. Democracy, ownership and participation in development are important factors because they take into consideration the degree that people are able to exercise their own agency and make decisions about their own development and future. Skills development and capacity building is needed to enable people to utilise opportunities. All the groups addressed this issue around education, capacity building and skills development. This issue is directly linked with livelihood opportunities.

4.5 Environmental conversion factors

Environmental conversion factors are those factors that "emerge from the physical or built environment in which a person lives" (Robeyns, 2017, p. 46). This can include both characteristics of the natural environment and geographic location, such as rainfall levels, or the presence of roads, dams or clinics.

Most of the residents of the catchment who participated in the research were dependent on agrarian activities for a livelihood, either partially (e.g. subsistence farmers) or completely (e.g. emerging and established commercial farmers). For them, fertile soil was a key environmental conversion factor. The relationship between fertile soils and a livelihood was explained by a commercial farmer as follows:

> The condition of the land is paramount to everything. Your wealth starts with the soil. If you have got good soil, then you have good grass. If you've got good grass then you've got good cattle. If you've got good cattle, you've got a good bank account. (CF2)

Other villagers also valued fertile soils as they contribute to the grazing capacity of the area. WS1 and WS2 participants too mentioned the importance of grazing to be able to keep livestock. A past resident mentioned the value of grazing lands:

> Another thing that is important and makes me to mention livestock empathically, is that back home we have vast grazing lands. That is why I mention it frequently, we have good grazing land. (PR1)

Good grazing and its ability to sustain livestock is important for economic and livelihood reasons, but also for cultural reasons. A healthy biodiversity also supports other cultural practices, such as traditional medicine and cultural food as mentioned by workshop participants.

> Traditional medicinal plants are of good use because we use it for animals and humans. (WS2)

Wild vegetables also form part of villagers' diets, especially women's diets, as shared by these female workshop participants.

> Wild vegetables are important to make vegetarian food (a food that is traditionally eaten by women). (WS2)

Thus, having a healthy ecosystem with healthy soils and good biodiversity has many important functions for people's livelihoods as well as their cultural practices.

The climate in the area is favourable for agriculture, particularly the high summer rainfall which was mentioned by several commercial farmers during interviews.

> The area, it has got good rains. About 700 to 1000 mm per annum. (ECF2)

> During the summer months you can get plus-minus 700 mm of rain. (ECF3)

> There is good rain normally, under normal circumstances, good rains. (ECF2)

> It's really becoming a sought-after area and that we have got the rainfall which few places have. (CF5)

The good rainfall together with the fertile soils makes the area suitable for a diverse range of crops as discussed by this farmer.

> We're fortunate, we can do almost anything here. We can grow all different kinds of crops … we are suitable to dairy, we are suitable [for] potatoes, we're suitable for maize. Beef farming extensively. (CF3)

Farming with a wide range of crops and livestock, residents are able to better secure a livelihood in the area.

With the suitable climate, good summer rainfall and fertile soils, it is possible to get good yields, as explained by this farmer:

> There are farmers around me who produce 10 tons per hectare on dry land, and that is good in maize in my assessment. (ECF2)

However, to fully utilise the potential of the area, infrastructure and agricultural technology are also needed. Small dams and irrigation systems were seen as conversion factors that can greatly help people improve the productivity of their agricultural activities. These two farmers elaborated on this:

> My intention is [if] I [can] get some money, I'm looking forward to some dairy cattle. I want to plant some grass for them. If I can get some irrigation up to do that … I have got some 10 hectares of land to use for this dairy and also, I've got a big river there, so I can get some water out of the river or irrigation. (ECF3)

> I do irrigate about 10 hectares only. If I can, I want to extend that irrigation. (ECF2)

> And also, I'm very interested in dams. I've got eleven camps on that farm. There is no water. I'm looking for each camp to have a dam. (ECF3)

While natural resources are available for further development, policies (or the lack of) and financial constraints hinder farmers from fully utilising the potential of these resources.

Agricultural technology, such as machinery for planting and harvesting their crops can further assist them to fully utilise the potential of the area. The past resident explained it like this:

> The land or soil we do have back at home. The only problem is resources or equipment to work the land and even plant vegetables. Like for instance to have support like getting a tractor that would make things easier for us. (PR1)

Thus, again, the area is seen to have natural resources. The technology is also available, but people lack the resources to access the technology and utilise the resources. Access to resources and technology could potentially help people to expand their capabilities and functionings and live a life which they regard as having value. In one of the workshops, the youth in particular mentioned how starting agricultural initiatives with more modern technology is something that can enable them to live a good life.

> To have a piggery to achieve a good life. (WS2)

> [We] could be benefitting by selling poultry. (WS2)

The Tsitsa River and its tributaries are important sources of water for people's daily use in the catchment. However, people in the communal areas still largely do not have access to tap water.

Access to this resource was seen as something that would greatly contribute to their quality of life. In both workshops, residents commented on this.

> Lack of water, tap water is a problem. (WS2)

> To have water. (WS1)

Again, the natural resources like water, are available. However, people lack the access to resources and technology to utilise these resources in a way that will enable them to live a life they value and have reason to value.

The scenic nature of the area was also mentioned by several participants. This natural beauty, many believed, lends itself to tourism.

> I suppose, if you're interested, there's tourism. If you want to get involved with that sort of thing. (CF2)

> If the country starts to economically grow, then tourism would be a huge benefit to the area. That's completely untapped. (CF3)

> Well, it is the most beautiful area in the country, number one. I think we've got an ideal climate. Very mild. Nice summers and nice winters and not too much wind and of course got most beautiful scenery … and the rivers and outdoor activities. (CF5)

However, the remote location of the catchment was seen as something that could limit unlocking this potential.

In summary, central to the environmental conversion factors are fertile soils and a good rainfall that is needed for producing crops as well as good grazing to support livestock. Thus, the natural resources and health of the ecosystem was perceived by many dependent on the land as central to their livelihoods. A healthy ecosystem also plays an important function in enabling people to give expression to their cultural practices and the use of things such as traditional medicine and traditional food (Cocks & Dold, 2006; Masika et al., 2000). However, it was not only the natural resources that were regarded as important environmental conversion factors. Access to technology and infrastructure was also regarded as crucial to enable people to fully utilise the potential of these natural resources. This was important for people's livelihoods, e.g. irrigation systems, and for basic needs, e.g. access to potable and tap water.

4.6 Structural constraints

Structural constraints are those factors that have a negative impact on conversion factors. They hinder people's ability to convert the characteristics of resources into capabilities and functionings. This can include policies, norms and laws. Structural constraints are not limited to material resources. Beliefs and social hierarchies can be structural constraints too (Robeyns, 2017).

In contrast with the opportunities offered by natural resources in the catchment, climate was also regarded as a construct that can limit one's ability to live a good life. Extreme and unpredictable weather conditions were a potential structural constraint for people living in the catchment because of their total or partial reliance on agricultural activities for livelihoods. Irregular rainfall, such as late spring rains or droughts, can have a severe impact on people's ability to plant and run livestock. A farmer explained how the weather conditions were impacting on his farming.

> I'm farming with cattle, little bit of maize. And this year I wanted to [plant] soya beans as well if it was not for the drought that we are experiencing. (ECF2)

Farmers are dependent on the timely arrival of the rains in order to utilise the benefits of the potential high rainfall they can get in the catchment. On the other hand, floods and hailstorms can also negatively impact on agricultural activities. The associated high insurance premiums can make it difficult for residents to make a living from the land. Another farmer explained this as follows:

> And the other great negative factor is our terrific hailstorms. I think we have the most hail just about in the whole country according to the insurance guys… We've all got to insure but the premiums are so high … I think last year the maize insurance was fifteen percent just in this area … if you take, it's fifteen percent of your crop, it is something very significant. (CF5)

The policies of the insurance companies and banks make it increasingly difficult for residents to enjoy livelihood security, as explained by this farmer.

> It's literally one company left and they're like also basically picky. They don't insure your vegetables, like cabbage which is a high risk. So that I think, in the long run is going to be a big negative for our agriculture because obviously a lot of farmers are planting with production loans and there is no way a bank will give you a production loan if there is no insurance. (CF1)

Thus, though one can potentially make a good living from the land in the catchment, there are also many risks associated with the climate, often tied to policies, which can make the residents and their livelihoods vulnerable.

High insurance premiums are only one factor contributing to the high input costs of agriculture in the area. The location of the catchment is another. The catchment is located far from the markets and goods and produce need to be transported for long distances to and from the catchment. This increases the input costs and reduces the profits farmers can make. During an interview, a farmer explained this:

> We are far from everything. We are far from the markets. So, everything has to be transported great distances to the market. We are also far from the markets from an input point of view. Our inputs of fertiliser and feed have to be transported great distances. So, our prices are lower than you'd get up country and what we get paid for our produce is less. (CF2)

In addition to these structural constraints, there are also other natural risks that increase the input cost of farming in the area. Predation is a problem in some areas, especially near the mountains, and to counter this, livestock needs to be herded and kraaled at night, adding to the input costs of livestock farming.

> The predation also increased the labour because all of our sheep has to sleep in every night. What doesn't sleep behind the net in a kraal is eaten. So, the sheep are let out every morning and brought back ever evening, every day. So, that's labour every day, including weekends. So, that's a very high input farming. (CF2)

Livestock is prone to diseases caused by the high rainfall and that adds to the input costs of farming due to high veterinary costs:

> We are in a red water and gal sick area, so at certain times of the year we have to be on guard against those. And also because of the high rainfall all the insect borne disease like your blue tongue … Red water is a big one and if you don't get this in time, it can cost you a lot of money if you missed it. Yeah, parasites are also a big problem because of the high rainfall. (CF2)

Thus, there are many structural constraints associated with the climate in the catchment. These structural constraints need to be balanced very carefully with the advantages of the area in order to reap the benefits of it and to be successful in making a livelihood of the land in the catchment.

The poor infrastructure available in the area was a big concern for all the participant groups. The poor condition of many of the roads meant that services cannot reach them. This was especially a big concern for residents living in the communal areas who often blamed the quality of the roads as part of the reason why they do not get access to services.

> To have good roads for service delivery. (WS1)

> We haven't got roads. That's the main thing above all things. Ambulances and police and other services can't reach us because of the poor roads. (WS1)

A lack of housing and overcrowding in houses were seen as a structural constraint. Residents in the communal areas were complaining about overcrowding in the houses.

> Overcrowded living in houses, (WS2)

Furthermore, the lack of recreational facilities, e.g. sports fields, was seen as something that contributes to people, especially the youth, lingering around and spending free time in shebeens, getting caught up in substance abuse, rather than participating in healthy activities.

> We would like to have our playing fields improved … To get support to always be on the [sports] field. Then there would be a decrease or no crime … [We want] support for resources and kit. (WS2)

The lack of healthy pastimes for the youth was mentioned repeatedly and was seen as a potential factor that contribute to the youth getting involved in substance abuse and criminal activities.

Access to education was a structural constraint highlighted by all the participant groups. The quality of education was a special concern for many (ECF3, CF2, CF3, CF6, F2). The high cost of education, including free, public schooling was also stressed. These costs combined with the lack of income can result in learners leaving school early as explained by this resident:

> I have got three children. One left off school in grade eight, the other one in grade nine and the young one is still doing grade five. They left off because I was not having a job then and money was required for their schooling… The problem that they had to leave school was that I was unemployed and so we could not afford all that was required at school. (PR1)

Not having a good education was associated with missing out on opportunities in life. During a workshop, residents explained it like this:

> [One] needs to be educated – formal education. One could miss chances of employment because you lack the education needed. (WS2)

Thus, residents recognise that one often needs a certain level of education or literacy to do a job. Without the necessary education to gain certain skills, one does not stand a chance to access those opportunities. In addition to lack of access to good schooling, a lack of post-school capacity development and skills development opportunities were also identified as structural constraints. An emerging farmer said the following:

> Capacitation is experience that you do not have and you need to be assisted on… farmers support and training which is very much lacking. (ECF1)

A lack of access to such opportunities can hinder people’s ability to run a successful farming business, create or utilise other income opportunities. During the workshops in the communal areas, residents highlighted how they lack the necessary skills and that capacity building can help fill this gap.

> Lack of skills to be able to work. (WS2)

> Government training facilities for welding or electricians. (WS2)

Lacking in capacity and knowledge was regarded as a factor that can result in a lack of commitment to farming that can hinder people’s ability to successfully make a living off the land. This value of capacity development was explained by an emerging farmer as follows:

> You see, through that training, that is where you load the commitment from farmers. That's where we develop the commitment from because maybe why the farmer might not have that commitment now is just because of lack of capacity. (ECF1)

Limited commitment to farming in itself was regarded as a potential structural constraint. Some perceived it as a factor that can result in land degradation and deteriorated veld.

> … but then you get other scenarios, where the farmer will just sort of let the farm run itself. So, there will be no fire breaks made. Fences won’t be fixed … and those farms become a problem … you know, runaway fires become a problem. The veld deteriorates. (CF3)

Thus, capacity development in commercial farming, in this case, is not only important for the immediate ability of residents to earn a livelihood. It is also important for the sustainability of the natural resources.

As discussed earlier, a lack of access to resources, such as agricultural technology was perceived as limiting residents' ability to fully utilise the characteristics of the resources available to them. Residents explained this as follows:

> It is difficult for them [farmers] and a shame for that person to be called a farmer because of his little resources [working tools]. (ECF1)

> [We have] the land and the soil back at home. The only problem is resources or equipment to work the land and even plant vegetables. Like for instance, to get support like getting a tractor. That would make things easier for us. These are some of the things that we lack whereby one could see what he could do for himself. (PR1)

This lack of access to resources was associated with the financial constraints that people experience. In talking about why he cannot access the technology needed, a resident had the following to say:

> It is money … yes, it is money that determines one's good life. Currently, the money that one is earning is faced by many things, like feeding your family with food and all other necessary things for a homestead. So, it is not enough to maybe try other ventures with it. You know already that your budget is constrained or restricted to necessary family priorities. Maybe if one was on his own you could try other business ventures, but then you know that by the month end you have to see to it that you yourself has to eat and also your family at home. So, with the little money that we get you cannot afford to do anything out of your budget. You must send money home, that is a priority. (PR1)

A perceived lack of government support was felt particularly hard. Emerging commercial farmers explained how this impacts on them:

> Yes, as much as government say it is supportive, they have little resources to support us. (ECF1)

> Government support, government support. If I could get government support that would be good for me here. For instance, my farm needs boundary fences, and grazing fences and arable land fences. (ECF2)

Uncertainty about ownership of and authority over land in the context of land redistribution policies and practices has a negative impact on stewardship and people's willingness to invest in the land.

> Yes. I did have it before I bought it, but I was not doing much because I was not sure whether I was going to be able to get it, you know. During those times you can think you have the contract only to find out that, no. Now you don't get fully engaged, because you are not hundred percent sure whether it would end up being owned by you. And I just kept on it and waiting for the contract and waiting for the time when [can't hear] they'll say that you're out. They'll come up and say, 'no, we are taking your farm. We are going to subdivide it'… And at one stage I asked, when they wanted to take it, 'People, if you want to take this farm, I am a black person. You are going to give it to another black person, why? What is the difference between me being black and the person to who you want to give my piece of land? I think I'm black enough. I'm black enough here'. (ECF2)

The poor economic situation that many residents find themselves in, together with political and climatic uncertainties about the future, can have a negative impact on residents' ability to access investments and resources for long-term livelihood security.

Difficulty in accessing resources includes accessing public resources, such as healthcare facilities. People need to travel long distances to access healthcare and the quality of the healthcare they receive is reportedly poor.

> [To live a good life, we need] access to basic health care. (WS2)

> Improve healthcare facilities. (WS1)

Again, this was of particular concern to communal residents who could not afford accessing private healthcare, and often could barely afford the hidden costs of public healthcare such as transport.

Limited employment and livelihood opportunities were highlighted repeatedly. This lack of livelihood and income opportunities, as well as the low income from the few jobs available, were seen as contributing to poverty.

> To have jobs to prevent poverty. (WS1)

> What deprives me to have a successful life is poverty. I don't have money. I am struggling. (WS1)

Unemployment and poverty, in turn, were regarded as factors that contribute to substance abuse and crime. Residents felt that people commit crimes to meet their basic needs, but people also commit crime because of substance abuse.

> We want people to stay safely in their home. Youth should get employment so that they are tired and not lingering around and bored and go to shebeens and commit crime. (WS1)

Crime is a big structural constraint that impacts negatively on conversion factors. There was a considerable sense of general fear among the residents. One resident became particularly passionate about this during a workshop:

> We need help. Our doors are being kicked off during pension and pay days. We are being killed. (WS1)

Another resident explained to me that to live a good life means:

> Absolute protection from physical and emotional abuse. Especially for women and children. (WS2)

Crime is not only impacting on people's personhood. Livestock theft is a big challenge in the area. One farmer had the following to say about this:

> I owned over 600 sheep there, but the stock theft, hayi. It increased to the extent that I had to stop farming with sheep. (ECF2)

Thus, not only are those without a livelihood tempted to commit crime, but crime also threatens to limit the livelihood opportunities of others.

As a result of the lack of livelihood and income opportunities in the catchment, people leave the area in search of opportunities elsewhere. A past resident explained why he felt he had to leave the catchment.

> Another thing is employment… that is why I first started working for long at Thabazimbi in Limpopo. Working at home I have never been able to. So, I have never worked at home even though I would have liked it if there were job opportunities there. I would have had no problem. (PR1)

Residents see the lack of development of the local areas as the reason why people have to move elsewhere in search of livelihood opportunities. During a workshop, residents blamed the lack of local development for people feeling like they have to leave the catchment in search of livelihoods elsewhere.

> They won't need to go to towns and cities if their own area is developed… Things can be improved locally. (WS1)

Too few development projects and slow business growth were perceived as factors limiting the livelihood opportunities available to people. Development projects were regarded as something that can address this situation.

> [We need] development projects. (WS1)

A big structural constraint, especially for the communal residents, is the lack of ownership and voice they have in development initiatives. People often lack access to information, including about resources and opportunities in the area. During a workshop, residents stressed that it is important for them to have a transparent understanding and knowledge of what development agencies are planning in their areas in order for them to give informed input. Development agencies should tell catchment residents the truth and not simply want they think the residents want to hear to agree to the development initiatives.

> [We want] knowledge and understanding of what is happening around us. (WS1)

Information sharing about projects can lack transparency and consequently people do not always fully understand the finer details of the development projects.

> It is good to know about the advantages and disadvantages of our development. (WS1)

Without a comprehensive and transparent understanding of what is planned for their areas and how it will impact on them, residents cannot give full informed consent and risk agreeing to things that do not benefit them or which they do not want. Factors that further negatively impact on this is the lack of participation by residents in meetings and projects. Though many regarded it as a positive factor that residents are willing to participate, not all residents or community members attend and participate in meetings.

> Lack of participation of residents in meetings and projects. (WS2)

Women and youth especially do not have enough of a voice in decision making. Residents reported that:

> There is gender inequality. We need gender equality. (WS2)

Communication is another factor that limits residents' ability to participate and share their informed voices on matters in the community. Information sometimes does not reach everyone within a community. Residents felt strongly that there is not enough communication and that communication should be improved.

> [There is a] lack of communication. (WS1)

> [We need to] improve the levels of communication. (WS1)

In addition to the general poor communication, residents also spoke of a divide between community members and consequently a lack of cooperation between them. Different residents have different interests and at times they undermine each other.

> The division amongst us as residents is a factor for us not living a good life. We undermine each other. (WS1)

Thus, though a sense of community and cooperation was regarded by some to be a social conversion factor in the catchment, others regarded the lack thereof between villagers as well as between different communities as a structural constraint. Residents reported divides in the community, which act as structural constraints. However, if altered in a positive way to help build a stronger sense of community, this can become a social conversion factor, as reported earlier.

In summary, the structural constraints were perceived to be the climate and a lack of access to financial resources, infrastructure, service delivery and opportunities. Unpredictable weather conditions and land degradation threaten residents' ability to make a living off the land and limits their livelihood opportunities. The poor existing infrastructure, people's limited access to technology and financial constraints inhibit their ability to convert the characteristics of the resources around them into capabilities and functionings. The high unemployment rate and the lack of livelihood opportunities contribute to the cycle of poverty. This, together with the high cost of education and limited skills development opportunities, limit residents' abilities to develop their skills and explore different livelihood opportunities. The high crime rate, in the form of interpersonal violence and livestock theft, threaten their very existence and ability to make a living from the land.

These structural constraints impact on the extent to which people are able to convert resources into capabilities and functionings to live a life they value and have reason to value. However, the conversion factors can strengthen residents' ability to do this. In the next section I discuss how all these factors, the valued beings and doings, conversion factors and structural constraints interact with each other.

4.7 Summary and discussion of most significant factors influencing catchment residents' capabilities and functionings

The environment and the climate act at times as environmental conversion factors, and at times as structural constraints. Good summer rainfalls are characteristic of the area's climate and, together with the fertile soils, give rise to healthy grazing. Good grazing fields enable people to keep livestock, for subsistence, or on small or large commercial farms. These environmental conditions enable the planting of various crops with potentially good yields. However, the weather can be unpredictable. Drought and late spring rains can prevent people from being able to plant and can affect natural grazing. Floods and hailstorms can damage crops and push up insurance and financial costs. Thus, the weather conditions can either contribute to people's ability to make a living from the land or hinder this. Knowledge on how to deal with the climate, including its unpredictability, can help residents to better cope with the structural constraints they experience. Knowledge can help them to better utilise the available resources to be able to make a living from the land. However, financial constraints, the associated lack of access to resources and technology and a lack of access to education and capacity development can hinder residents' ability to utilise natural resources and make a living from the land.

Being able to make a living off the land can add to people's livelihood security and income opportunities. Having livelihood security and a secure income gives people financial freedom and enables them to look after their families. Livelihood security and income opportunities help to alleviate poverty and enable residents to establish homesteads and to stay with their families in the catchment. A lack of livelihood opportunities and the associated income is associated with an increase in aimless loitering, substance abuse and criminality.

Livelihood opportunities related to environmental conversion factors, such as natural grazing can be threatened by factors such as livestock theft and land degradation. If the veld is in a poor condition, the grazing will be poor as will be the condition of the livestock. The condition of the livestock in turn has a direct impact on income. Similarly, livestock theft can threaten livelihood security.

Poor infrastructure is seen as a structural constraint by many. This includes poor roads, healthcare facilities and schools. Apart from the distances residents need to travel to access schools and clinics, the quality of healthcare services and education are also considered constraints. The poor condition of the roads further adds to the inaccessibility of these facilities and services. Poor water quality and a lack of access to clean tap water can contribute to ill health and the burden of labour, especially for women.

However, should this infrastructure and services such as healthcare, education and opportunities for capacity building improve, this can in turn improve residents' well-being and livelihood opportunities. Livelihood opportunities can help people earn an income leading to financial freedom which enables them to look after their families, establish a homestead and be able to stay with one's family at one's place of birth which many found desirable.

Poor healthcare, and consequent ill health, as well as low levels of skills contribute to people finding themselves in a poverty trap. The lack of livelihood opportunities and low or no income keep many in the poverty trap, which in turn hinders them from being able to access healthcare and educational opportunities.

Substance abuse is a big concern for residents. The high levels of unemployment and poverty along with a lack of recreational opportunities, were blamed for high levels of substance abuse. Substance abuse and poverty, along with people's need for survival, is believed to contribute to higher levels of crime in the area. Residents complained about interpersonal violence, domestic violence and stock theft.

Education and capacity building can help to develop residents' sense of agency. If people's agency is developed, they are likely to attend meetings and participate actively in development initiatives. Having a strong sense of community and good informal networks can motivate people to participate if they have a sense of a collective goal. If people attend meetings and participate in development processes, they are more likely to become the owners of the processes and initiatives. This, together with policies that support democracy, can help give people a democratic voice in their own development. This can speak to people's valued beings and doings, introduced in the first part of this chapter, of having voice, ownership, decision making power and being respected. However, these positive potential achievements can be hindered by poor cooperation between stakeholders, poor communication flow within communities and a lack of ownership and participation in development.

4.8 Conclusion

This chapter presented the findings on what the residents of the catchment value being and doing. Many of these valued beings and doing were shared across the different participants groups, for example, being able to live a good life in the catchment where one is able to meet one's needs and live with one's family. Many of these valued beings and doings were also reported as potential conversion factors, should a person have certain characteristics, such as being positive, hard working or motivated. Thus, they were valued because they were understood to be potential success factors. The chapter also presented what was perceived by the residents as the conversion to convert resources into valued beings and doings and the structural constraints that can prevent them from doing this. It is important to note that many of these conversion factors and structural constraints were inversions of one another. For example, a sense of community and cooperation was regarded as an important social conversion factor. However, a lack of community or a divide in the community was seen as a structural constraint. Therefore, in the community, the underlying mechanisms exists to have community cooperation or a divide in the community. Depending on which of these mechanisms is activated can have an impact on whether the community achieve their valued beings and doing, or whether they experience a structural constraint. Being conscious of these potential underlying mechanisms is important for programme implementation and to monitor which underlying mechanism is being activated that drives or hinders the achievement of valued beings and doings.

Though the findings from this chapter could already be used to develop social indicators, another layer of data was used to add to an understanding of the Tsitsa Project and its mandate. In the next chapter, Chapter Five, I present my findings on what the RUIT regard as important for the Tsitsa Project. Adding this layer of data is important to ensure that the social indicators for evaluating the Tsitsa Project also speak to what the Tsitsa Project needs to report on based on its vision and agreements with funding agencies.

Chapter 5: Goals and Objectives of the Tsitsa Project

5.1 Introduction

The previous chapter presented the valued beings and doings of the residents in the catchment, together with what they perceive to be the conversion factors that help them expand their capabilities and functionings, and the structural constraints that prevent them from doing so. This chapter focuses on the Tsitsa Project as conceptualised by the RUIT, its vision, goals and objectives and answers the question: *How can the goals and objectives of a NRM programme be integrated with the valued beings and doings of beneficiaries to identify social indicators?* This helped me to determine what is valued by the Tsitsa Project. What is presented in this chapter is often the only data used to determine the indicators of a development programme. However, with this study's focus on selecting indicators that will speak to the valued beings and doings of the residents in the catchment, it is only one step in the process. Understanding both what the catchment residents value and what the Tsitsa Project's RUIT value will provide the basis for formulating a set of indicators that reflect these (presented in Chapter Six).

The data presented here was gathered through document analysis of the key programme documents, the Research Investment Strategy 1 (Fabricius et al., 2016) and the Research Investment Strategy 2 (Biggs et al., 2018), as well as a key informant interview with a senior programme advisor and co-author of the Research Investment Strategy 1 and 2. Reflections and insights from ongoing meetings, interactions and workshops around the Tsitsa Project's ToC with the RUIT in my capacity as M&E coordinator also informed my understanding of what was valued by the programme. The data went through several layers of analysis for streamlining in order to present a complex programme theory in a coherent, easy to understand manner. This was a participatory process involving workshops and discussion with the RUIT CoP leaders and members. It is the results from this participatory process that are presented in this chapter.

As the Tsitsa Project's PMERL has been designed as a theory-based approach to evaluation, I will present the Tsitsa Project's proto-vision and theory of change. The chapter concludes with a section on the preconditions the Tsitsa Project wishes to achieve in order to help reach its goals and vision. These preconditions assisted with developing the indicators in Chapter Six.

5.2 Proto-vision and theory of change of the Tsitsa Project

The proto-vision for the Tsitsa Project is ”to support sustainable livelihoods for local people through integrated landscape management that strives for resilient social-ecological systems and which fosters equity in access to ecosystem services” (Biggs et al., 2018, p. 15). Based on this vision, the following high-level outcomes can be identified:

- Residents have sustainable livelihoods in the catchment;
- Integrated landscape management in the catchment that facilitates resilient social-ecological systems; and
- Local residents enjoy equal access to ecosystem services.

The proto-vision and high-level outcomes of the Tsitsa Project highlight the importance to the Tsitsa Project Rhodes research team of a healthy social-ecological system that can support sustainable livelihoods in the catchment. It is also important that people will be able to make a living off the social-ecological resources in the catchment in a sustainable manner that can support current and future generations. Furthermore, in the Tsitsa Project local communities and residents should play an active part in decision making and execution of the management of the Tsitsa catchment. It is important for the Tsitsa Project that the catchment is managed in a manner that is relevant to and reflective of the views and needs of the residents of the catchment. Hence the importance of reflecting their valued beings and doings in the social indicators. Also important to the RUIT is that the residents of the catchment can enjoy equal access to ecosystem services. Thus, it is important to the programme that all residents can enjoy the benefits of the ecological services available in the catchment and can utilise these to support their livelihoods. Therefore, these factors should be reflected in what is evaluated by the social indicators.

The work done to achieve this proto-vision and these high-level outcomes is supported by the principles of the Tsitsa Project. According to Cockburn, Palmer, Biggs, and Rosenberg (2018), these are as follows:

- ***Principle 1****: Embed complex social-ecological systems and resilience thinking in praxis*
  This means an integrated understanding of human-in-nature and that human systems are embedded in the biosphere. Based on this principle, it is important for the Tsitsa Project that the resilience of the ecosystem services is strengthened in the Tsitsa catchment to support human well-being.
- ***Principle 2****: Encourage polycentric and participatory governance approaches*
  This principle stresses that it is important that a complex system, such as the Tsitsa River

catchment is managed in a collaborative approach, involving multi-scale, polycentric governance approaches underpinned by social learning. It is important that stakeholders at multiple levels are involved with the collective management and decision-making processes of the Tsitsa catchment. The programme's focus on capacity development to support polycentric governance further highlights how important it is to the programme that stakeholders at all levels are able to participate in the governance and decision-making processes of the catchment.

- ***Principle 3****: Generate transdisciplinary, action-orientated and engaged research*
  This principle stresses the importance of bridging the gap between the research being done and the implementation of activities in the catchment. It is important that the knowledge gained through research is ploughed back into the catchment and used to adapt and guide activities. This can ensure that it is appropriate for the context of the catchment and reflects the local, indigenous and experiential knowledges and voices.
- ***Principle 4****: Work in collaborative, reflexive, adaptive and learning oriented ways*
  This principle stresses that it is important that Tsitsa stakeholders work collaboratively, are willing to adapt to changing circumstances and continuously use reflective learning to adapt accordingly. It is thus important to the programme that the stakeholders remain flexible and do not impose rigid ideas onto the programme.
- ***Principle 5****: Create enabling conditions for equitable participation by multiple stakeholders with a particular commitment to meaningful engagement with local communities*
  It is important that there is active participation between the Tsitsa Project and the residents of the catchment. To ensure this, it is important that the residents of the catchment are able to participate as equals in the processes of the Tsitsa Project. Residents need the space not only to participate, but to be supported and capacitated to be able to do so.

To further understand how the RUIT envisions the project to address the current problem situation and facilitate change in the Tsitsa catchment, I will discuss the Tsitsa Project's theory of change below. As described in Chapter Two (section 2.5.1), the theory of change is a programme's conceptual thinking about how it will influence change. Though one of the main advantages of a theory of change is that it can depict the non-linear connections in a programme that contribute to changes in a complex system, the theory of change of the Tsitsa Project is depicted by Botha et.al (2017) in a linear manner. The original version of the Tsitsa Project's theory of change is depicted below in Figure 5.1.

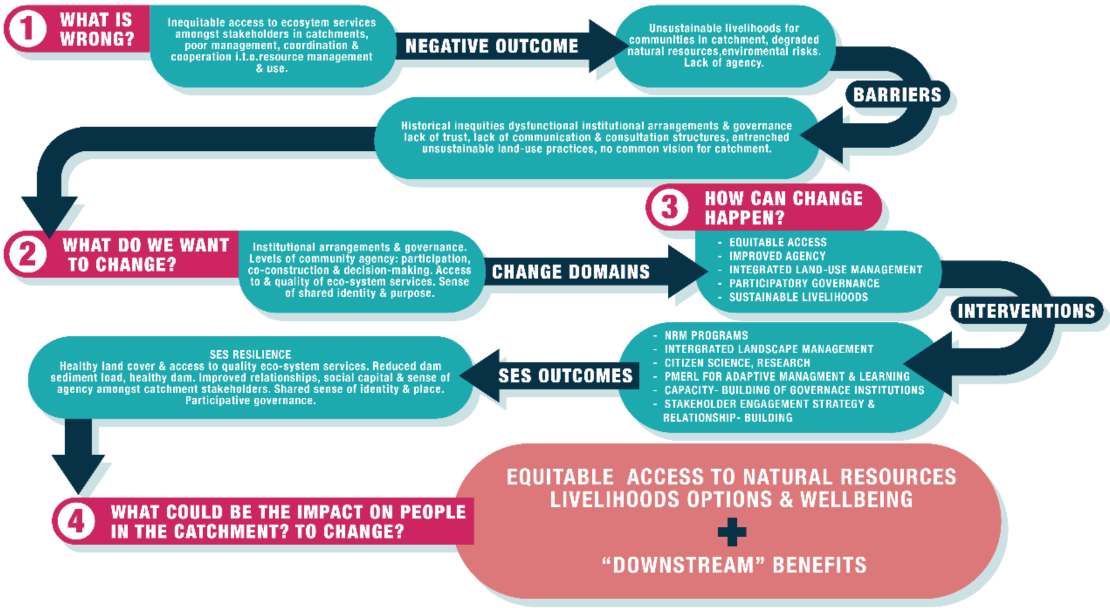


Figure 5.1: Tsitsa Project ToC (Botha et al., 2017)

Figure 5.1 shows a linear pathway from what the RUIT perceive to be the problem situation in the catchment (inequitable access to ecosystem services, poor management, poor coordination and poor cooperation) and how the programme aims to address this land degradation problem to create a situation where the catchment is a resilient and healthy social-ecological system with relevant institutional structures, that support the development of the residents by expanding their freedoms to be able to choose the lives they want to live. To understand the above theory of change better, I analysed it using a critical realist lens given that critical realism is not only the theoretical underlabourer of this study, but also for the PMERL framework (Botha et al., 2017).

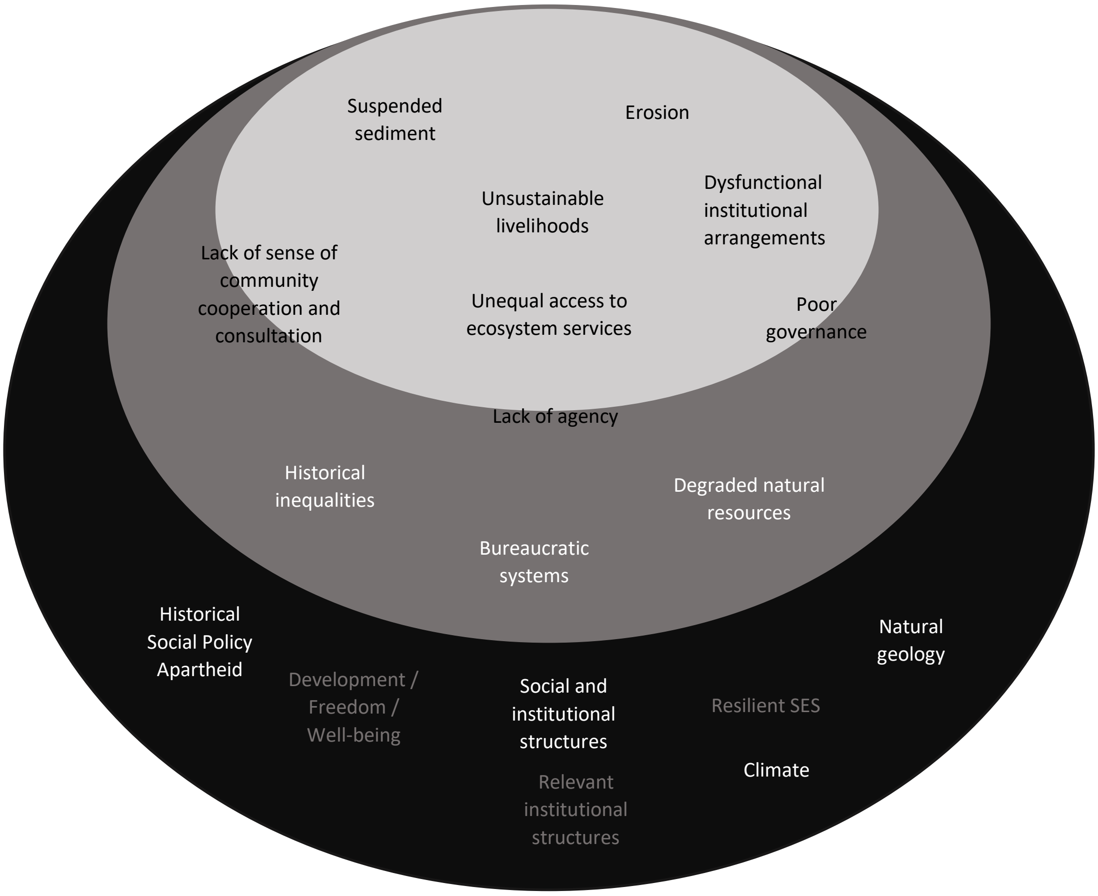
In realist programme evaluation theory, it is argued that a programme aims to address the underlying mechanisms that results in the current development problem (Pawson, 2013). By addressing the problem situation, new or other underlying mechanisms can be stimulated and change then occurs. Below follows a description of the Tsitsa Project's theory of change using such a critical realist lens.

According to the Tsitsa Project's theory of change, the underlying mechanism that needs to be addressed in the catchment is that the natural geology is vulnerable. The geology is characterised by highly dispersible soils that are prone to erosion, resulting in huge dongas and high levels of suspended sediment in the river that would cause the proposed dams to silt up quickly, risking the profitability of the dams. With residents in the area relying partially or fully on agriculture for an income and/or food security, these degraded natural resources have the negative outcome of having unsustainable livelihoods for those dependent on the natural resources. Apart from the natural resources being very degraded in certain areas, residents also have unequal access to resources in the catchment. This is partly related to historical policies such as Apartheid engineering unequal access to resources for citizens. Thus, historical policies, current social and institutional policies and the vulnerability of the natural geology impact on residents' equal access to resources.

The effects of historical policies are still visible today. The current social and institutional structures and policies continue to fail to support active agency and participation from the residents. This results in many negative outcomes including:

- Residents lacking a sense of cooperation;
- Governance structures lacking consultation with community members;
- Residents' lack of agency evident in the absence of civilian voices in governance structures;
- Lack of good governance structures in the catchment;
- Institutional arrangements in the catchment appear to be dysfunctional; and
- Residents have unequal access to ecosystem services, such as water.

This can be depicted in a realist ontological diagram (see Figure 5.2).



Empirical domain (empirical observations	
Actual domain (underlying mechanisms)	
Real domain (deeper mechanisms)	

Figure 5.2: The social-ecological problems in the catchment and underlying mechanisms as understood by the Tsitsa Project

To address this problem situation, the Tsitsa Project aims to work on factors visible in the empirical domain and the associated underlying mechanisms. The Tsitsa Project wants to effect change in domains that will facilitate change to create the following preconditions for improved ecosystem services:

- Residents have a sense of shared identity and purpose;
- Residents participate in development planning and co-construct decisions;
- Systems of participatory governance in place;
- The catchment is under an integrated management plan;
- Residents have equitable access to ecosystem services; and
- Residents have access to sustainable livelihoods.

The Tsitsa Project aims to influence the current problem situation through various activities that will contribute to creating the above preconditions. These activities are all interrelated and broadly include the following:

- Integrated landscape management;
- Stakeholder engagement;
- Relationship building;
- Capacity building of governance institutions;
- Citizen science;
- Research and PMERL for strategic adaptive management; and
- Various Working For programmes addresses land restoration and avoided degradation.

This is depicted in Figure 5.3.

By creating the above preconditions through the interventions of the Tsitsa Project in the Tsitsa River catchment, a different ontological world can come into being, where we observe change due to different mechanisms being activated. These mechanisms would be a mechanism of development where:

- People experience freedom to be and do the things that are of value to them and experience well-being;
- Institutional structures are relevant and address the needs of the residents and their unique physical, social and political context; and
- Social-ecological systems are resilient (e.g. grass cover can make soils less vulnerable to erosion).

These underlying mechanisms in the Real can stimulate changes in the other ontological domains which can become more visible for the project. The mechanism of development that facilitates freedom can stimulate agency. Agency in turn can stimulate the voices of marginalised groups like village women and youth and participatory governance structures. Agency can also contribute to residents' sense of identity and place and improved relationships with each other, as well as with organisations and institutions introducing initiatives in the catchment. Together, these can contribute to the social capital available to residents of the catchment (Biggs et al., 2018).

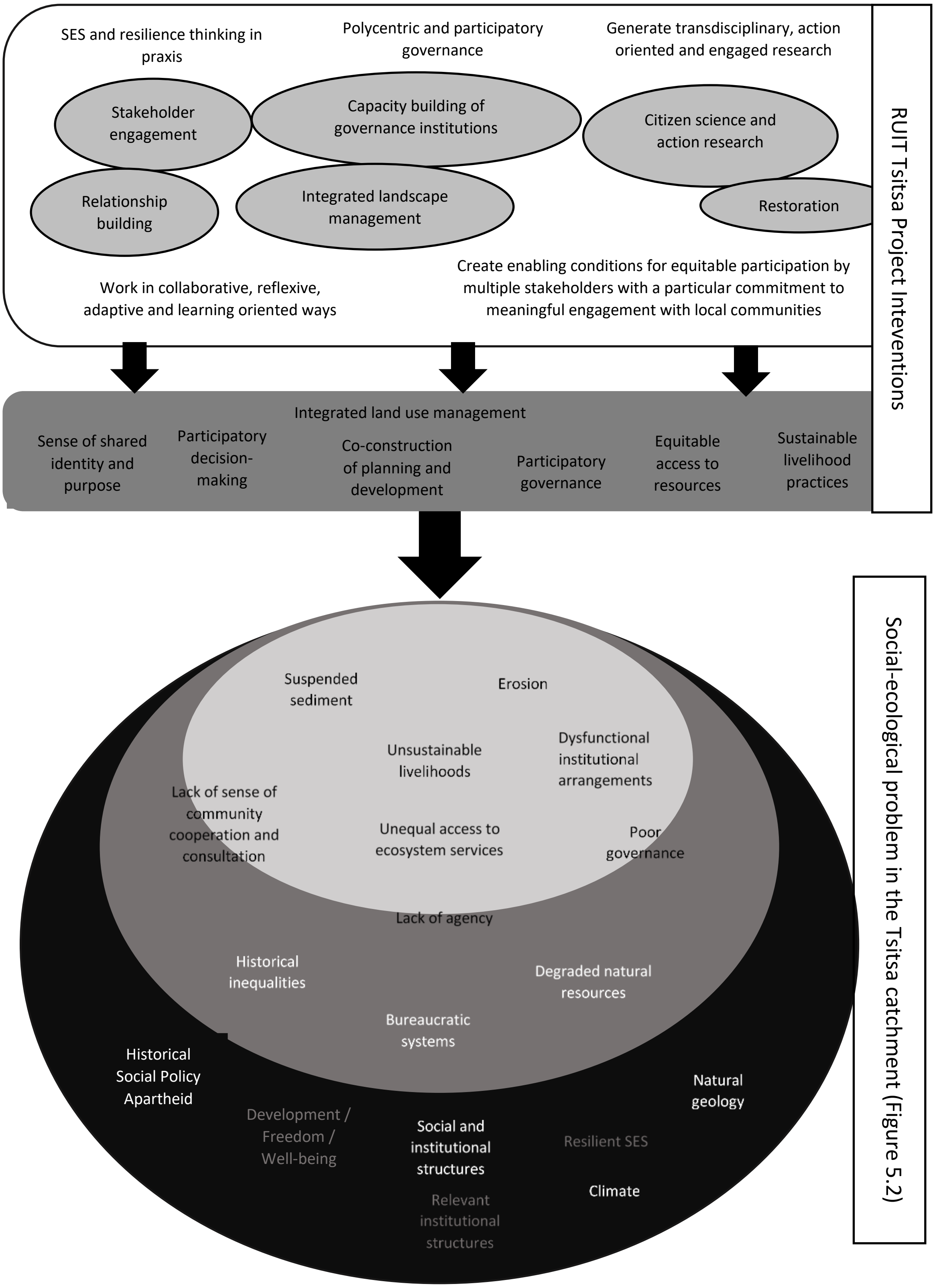


Figure 5.3: How the Tsitsa Project plans to interact with the current social-ecological problems in the Tsitsa catchment

Livelihood options and healthy natural resources can facilitate a reduction in erosion and sediment load in the rivers, healthy land cover and livelihood opportunities. A healthier social-ecological system can also contribute to the choices available to people and their ability to live the lives they value and have reason to value. An ontological map depicting such an alternative outcome as envisioned by the Tsitsa Project is depicted in Figure 5.4.

Figures 5.2, 5.3 and 5.4 depict the ToC that is based on the document analysis (Biggs et al., 2018; Fabricius et al., 2016), a key informant interview and a participatory workshop with the RUIT. Based on this understanding, the following inferences can be made about what is important to the Tsitsa Project:

- A key focus area of the Tsitsa Project is to conduct research, however it is important that this research is informed by local, indigenous and experiential knowledge. This is important to the research team because they follow the principles of a participatory approach and want to implement practices in the catchment that reflect what residents of the catchment regard as important.
- To follow a participatory approach, and work with the local residents, it is important that the Tsitsa Project build good relationships with the residents and the relevant traditional and local governance structures. It is considered crucial to establish trust between the residents and the Tsitsa Project. Good relationships with the residents and governance structures, based on trust, is an important foundation for participatory decision-making, and the co-construction of planning and development.
- It is important for the Tsitsa Project that relationships between different stakeholders (residents, local, provincial and national government, and implementing agencies) improve with the building of trust and participation. This can also contribute to the social capital of the residents of the catchment.
- It is important to the Tsitsa Project that governance structures in the catchment are reflective of local voices and that residents actively participate in local governance structures.
- To ensure participation, it is important for the Tsitsa Project that local residents' agency is developed in order for them to participate in local governance structures, as well as planning and decision-making processes.

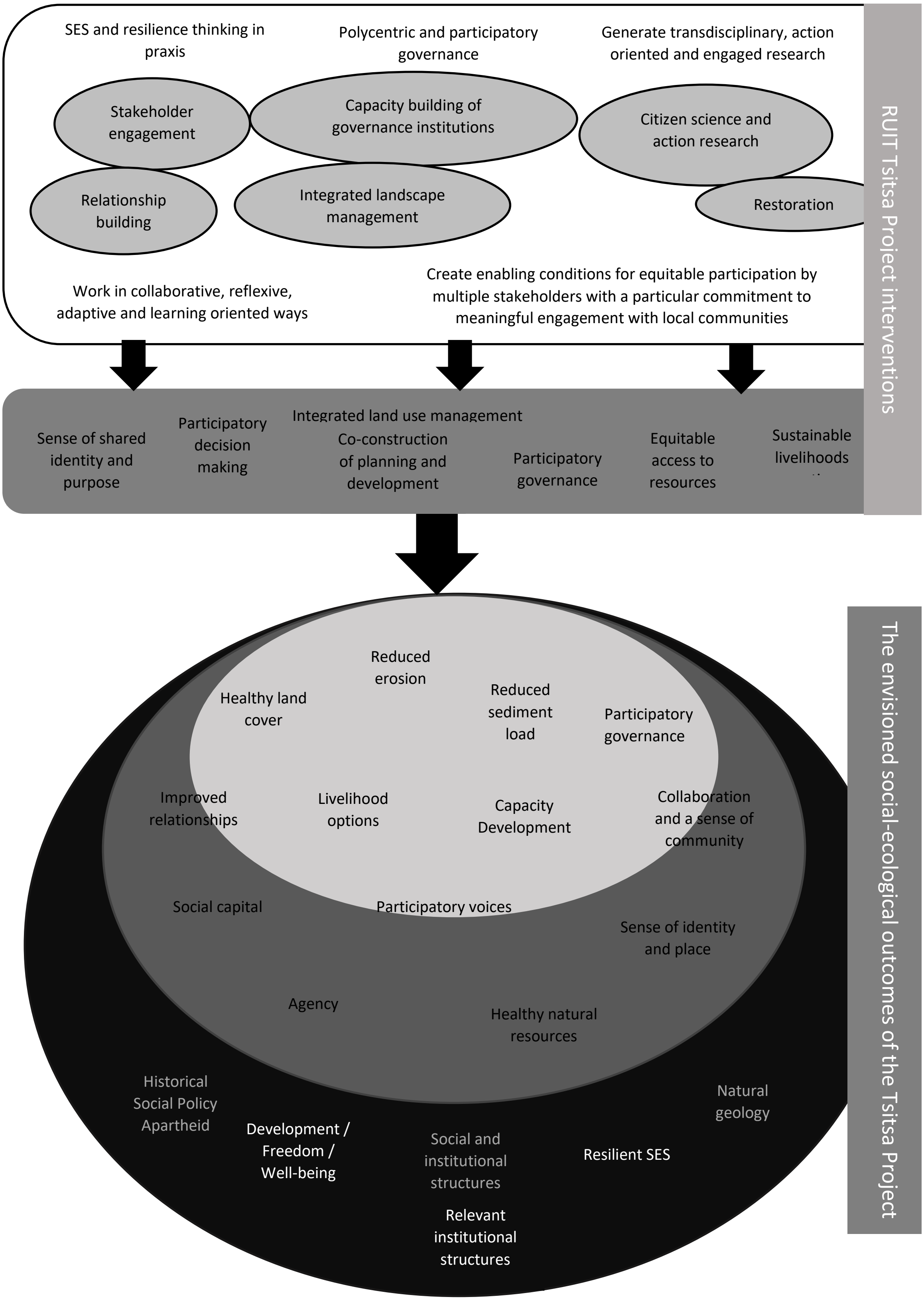


Figure 5.4: The envisioned outcomes of the activities of the Tsitsa Project in the catchment

- Developing local residents' agency and supporting participation is important to the Tsitsa Project in order for the catchment to be managed in an integrated manner.
- It is also important for the Tsitsa Project that inequality is addressed and that catchment residents have more equal access to resources.
- Residents should have a sense of identity and purpose.
- Residents should have access to sustainable livelihoods.
- It is important that the Tsitsa catchment has a healthy social-ecological ecosystem. This is also important for sustainable livelihoods which is central to the Tsitsa Project vision.

Indicators help programme management to track whether the programme is on track to achieve its goals and objectives. Having identified what is important to the RUIT, one can identify the factors they should track to measure whether they are reaching their goals and objectives. These factors should be taken into consideration when developing the PMERL indicators (i.e., the M&E indicators) together with the factors that are important to the residents of the catchment (presented in Chapter Four). With one of the key factors that is important to the Tsitsa Project management being participation and representation of community voices in the work they do, it is further even more important that the indicators take into consideration what the residents of the catchment value being and doing, what they consider as structural constraints that hinder them from being able to live a life they value and what conversion factors would enable them to do so.

With this understanding, key factors were identified that were important to the Tsitsa Project. These factors were used to develop potential indicators that could be monitored for the evaluation of the Tsitsa Project. Together with the potential indicators that were developed based on what was understood to be the valued beings and doings of the residents of the catchment, the RUIT participated in voting for the indicators they believed were best positioned to evaluate the Tsitsa Project (process described in section 3.7) and would allow social learning with regard to the progress made or not, in the programme. The results of this process are presented in Chapter Six.

5.3 Conclusion

This chapter examined the theory of change of the Tsitsa Project in order to consider how it could influence what indicators are selected for the Tsitsa Project. The aim of this chapter was to develop an understanding of what is important or valued by the RUIT. Understanding what is valued by them is important so they know what to monitor and evaluate to judge the impact of the programme. Though this process is often used on its own to select indicators for the evaluation of a programme, for this study, the theory of change was one step in the process of identifying indicators, the other being the identification of the valued beings and doings of the residents of the catchment. Chapter Six uses the findings presented in Chapters Four and Five to propose the indicators that can be used to evaluate the Tsitsa Project.

Chapter 6: The proposed social indicators

6.1 Introduction

The main research question this study aims to answer is *How can the capability approach be used to evaluate human development in the context of NRM activities?* Chapter Four answered the sub-questions *What do residents of the Tsitsa catchment regard as valued beings and doings,* and *What factors support or prevent the development of people's capabilities and functionings from the perspective of these residents?* Chapter Five took a closer look at the goals and objectives of the NRM programme as the context in which these are being addressed and answered the question *How can the goals and objectives of a NRM programme be integrated with the valued beings and doings of beneficiaries to identify social indicators?* An analysis of the programme documents, a key informant interview and a participatory workshop helped me to discern what is valued by the RUIT. Following these processes to develop an understanding of what is important both from the perspectives of the residents of the catchment, as well as the RUIT, enabled me to develop an integrated understanding of what the social indicators for the Tsitsa Project should focus on that would reflect both these perspectives. The results from this process are presented in this chapter which thus also answers the sub-question *What would the indicators of human development be, informed by these findings?*

I start this chapter, with a presentation of the change pathway of the programme. This change pathway depicts the valued beings and doings of the residents of the catchment and how change is envisioned by the RUIT. This is followed with a presentation of the proposed social indicators. A discussion of the limitations and guidelines of how the indicators can be used then follows. The chapter concludes with an example of an indicator protocol for the indicators.

6.2 Change pathway and change domains

The change pathway was developed from the findings on what the valued beings and doings are of the residents of the catchment (presented in Chapter Four) overlaid with the proposed programme goals and objectives of the Tsitsa Project (presented in Chapter Five). A cross-check was also made to the change domains of the Tsitsa Project. The change domains can be described as categories of areas of possible change in a programme. According to Lennie (2011), change domains are used to help define areas that are important to a programme; they can help track whether progress is made towards the desired outcomes and objectives; provide guidance with regard to what kind of change programme evaluation should look for; and group stories together so they are more manageable. Having an understanding of what the RUIT regard as the most important areas of change that should be focused on, helped to group the valued beings and doings, conversion factors and structural constraints of the residents into areas of change. The change domains thus helped to structure or categorise the findings of the valued beings and doings of the residents of the catchment. The change domains identified by the Tsitsa Project are: access, agency, land-use management, governance and livelihoods and well-being. With this understanding of how change could potentially occur in the Tsitsa Project, the change pathway was developed to understand how the valued beings and doings, together with the structural constraints and conversion factors are potentially linked, as well as how they are linked to the change domains. This change pathway thus elaborated on the change domains and identified factors that can impact on change in the catchment. Potential indicators were developed according to these factors identified in the change pathway. The indicators selected were those selected by the RUIT that also reflected the findings on the valued beings and doings of the residents of the catchment after cross-checking with the raw data that these chosen social indicators do reflect what emerged from the data (i.e. what the valued beings and doings are of the residents of catchment, as well as what they perceive to be the conversion factors and structural constraints). A description of the change pathway (Figure 6.1) follows below.

Well-being is the main goal of the Tsitsa Project. Defining well-being is a complicated task. People have different understandings of well-being. In the capability approach, Sen (1999) (discussed in Chapter Two, section 2.4) understood well-being as the things people can be and do, their capabilities and functionings, rather than simply their material wealth. Though Sen (1999, 2017) acknowledged that incomes and commodities impact on people's ability to achieve capabilities and functionings, many other factors impact on people's ability to convert income and commodities into capabilities and functions. People's different physical characteristics (personal heterogeneities), differences in environmental conditions (environmental diversities), variations in social conditions, the differences in the amount of wealth that is required in a specific community to achieve functionings (difference in relational perspectives), and how income is distributed in families all influence people's ability to covert income and commodities into capabilities and functionings. This understanding of what people value being and doing is important to evaluate their abilities to be and do those things important to them. For people to enjoy well-being, they should have the ability to make free choices over what beings and doings they want to achieve that are of value to them. Thus, it is important that they have control over their own lives with freedom of choice and agency with autonomy and ability (Alkire, 2008) (see Chapter Two). The indicators therefore have to take into consideration measures that could indicate whether people have the capability to be more in control of their own lives.

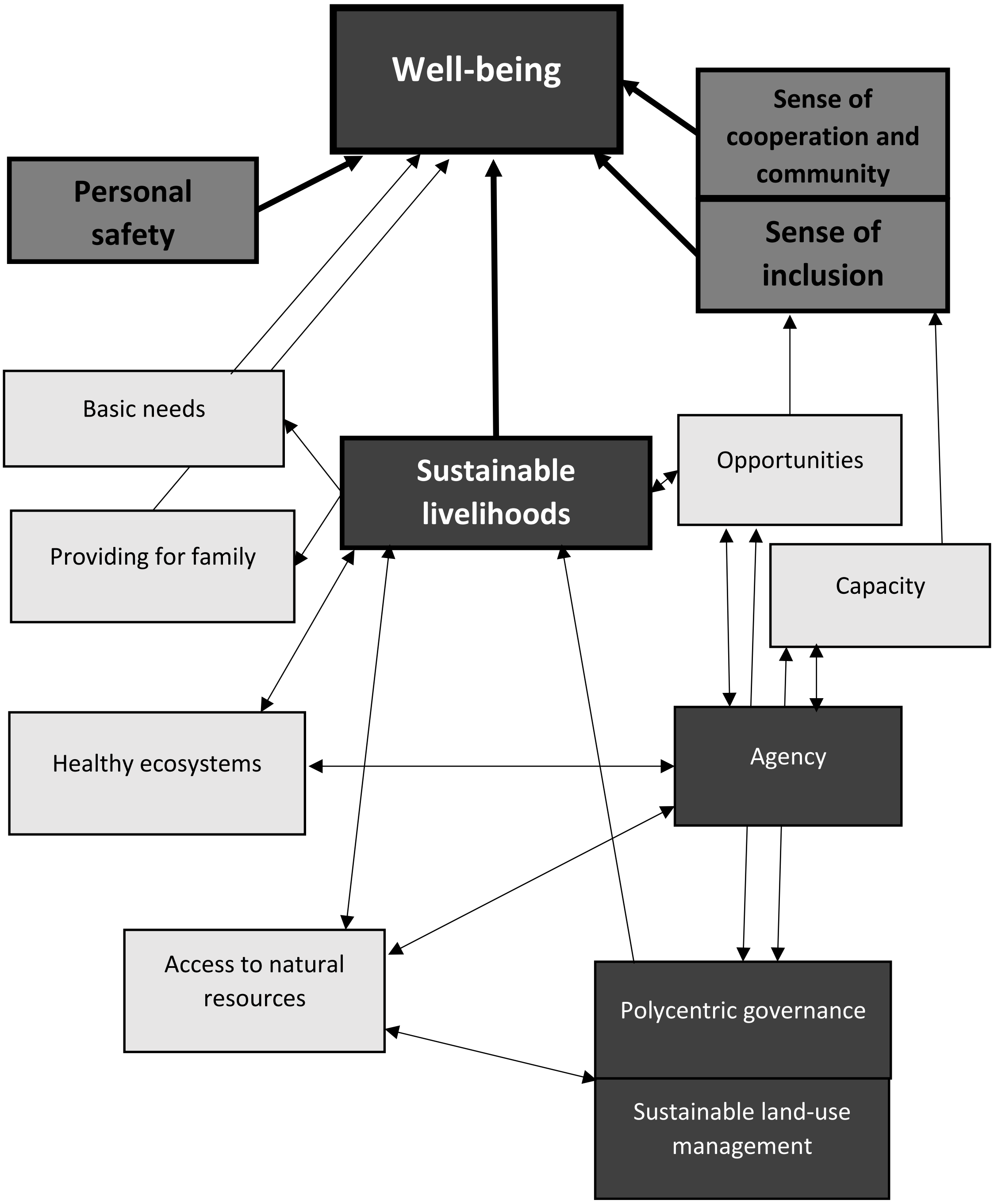


Figure 6.1: Tsitsa Project Change Pathway

This change pathway highlights several aspects that Nussbaum (1997, 2003) also notes in her list of basic capabilities.

- Life: people want to live a life that is worth living, to have their basic needs met including physical health.
- Bodily integrity: people want to be safe and protected from violence.
- Sense, imagination and thought: people want to be able to have a voice with influence on what is happening in the catchment and have access to the knowledge and information necessary to do so.
- Emotions and affiliation: people want to have attachments to things and people outside themselves. This need is visible in their expression of the desire to have a good sense of community and inclusion.
- Practical reason and having control over one's environment: people want to be included and have agency to be able to participate and have influence in the decision-making processes and planning in the catchment.

The change pathway also speaks to the Goldin's (2013) proposed list of capabilities for the water sector which she calls the *Water resources health list.*

- Health and basic goods: this speak to people's needs to have their basic needs met for shelter and nutrition.
- Education and literacy, awareness and understanding: this refers to people's need to have access to good and reliable information to be able to participate in decision making processes and planning related to development and activities in the catchment.
- Self-respect and aspiration, having significant relations to others, and participation in social life: people wanting to be able to feel included and participate in community meetings and decision-making processes.
- Autonomy and self-determination: people want agency and control over their lives.

Aspects of various 'points' on the change pathway speak to more than one item on the lists of both Nussbaum (2003, 1997) and Goldin (2013). Developing indicators based on this change pathway, which speaks to both Nussbaum (1997, 2003) and Goldin's (2013) lists can provide insight to the possible expansion of people's capabilities.

Based on the findings of my research, well-being for the residents is affected by:

1. Sustainable livelihoods *in the catchment* through which people meet their basic needs and provide for their families,
2. Personal safety where they can live peaceful lives free of violence and violations of their personal and material goods,
3. A sense of inclusion in decision-making processes in the catchment that impacts on them, and
4. A sense of cooperation where community members work together among themselves, and the Tsitsa Project stakeholders.

The concept of a sustainable livelihood is defined by the Food and Agriculture Association of the United Nations as

> the capabilities, assets (including both material and social resources) required for a means of living. A livelihood is sustainable when it can cope with and recover from stresses and shocks and maintain or enhance its capabilities and assets both now and in the future, while not undermining the natural resource base. (*Guide for Monitoring and Evaluating Land Administration Programs*, 2019)

The sustainable livelihoods framework (SLF) views livelihoods as systems and encourages us to understand livelihoods through the assets and strategies people draw on to make a living, the context in which livelihoods are developed, and the factors that make livelihoods more or less vulnerable to shocks and stresses (*Guidance note on recovery livelihood*, n.d.; *Guidance on Livelihood: Disaster Recovery Toolkit*, 2015). Though the residents of the catchment verbalised their understanding of livelihoods more directly related to income, the evaluation of this will take with a more complex understanding of sustainable livelihoods that accommodates the factors that can impact on people's ability to earn an income. For residents of the catchment, livelihoods were specifically related to their ability to meet their basic needs, such as being able to afford to send children to school, have food and access to healthcare, and also to ensure that they can meet these needs in providing for their families.

In the Tsitsa catchment, sustainable livelihoods are closely related to many aspects. This could be ascribed to the impact of material well-being on people's ability to achieve desired capabilities and functionings. With the broader systems understanding of livelihoods, the impact of other social resources is also related to people's ability to have sustainable livelihoods. Thus, sustainable livelihoods are somehow interconnected with all the other factors in the catchment that are regarded by the residents as important to help them achieve well-being. This includes:

i. Healthy ecosystems (this will be monitored by the biophysical indicators for the Tsitsa Project and will not be discussed in this thesis),
ii. Agency,
iii. Polycentric governance and closely related,
iv. Sustainable land-use management, and
v. Access to natural resources.

These factors will be discussed individually below.

According to the World Health Organization (WHO) (Ecosystem Goods and Services for Health, 2019), healthy ecosystems can be understood as the as the plant and animal populations interacting in balance with each other and non-living things. The health of an ecosystem can be affected by human interference. Human interventions can have a negative impact on the ecosystem's ability to provide goods (fresh water, food, medicinal plants) and services (purification of air, water and soil) Ecosystem Goods and Services for Health, 2019). Because residents in the catchment are dependent on these ecosystem goods and services (see p. 85 of this thesis), it is important to monitor the health and balance of the ecosystem. As mentioned above, the indicators for healthy ecosystems are biophysical and will therefore not be discussed in this thesis.

In terms of 'agency', I am referring to Amartya Sen's understanding of an agent. Sen (1999) described an agent "as someone who acts and brings about change, and whose achievements can be judged in terms of her own values and objectives , whether or not we assess them in terms of some external criteria as well" (Sen, 1999, p. 19). Alkire (2008) elaborates on this understanding of agency and adds that to measure agency one needs to look at both people's autonomy (people are able to act on behalf of what they value) and ability (people are able to act on behalf of things they are assumed to have reason to value). Thus, someone with agency is someone who can participate in social, political and economic actions and have the autonomy and ability to act on what they value and are believed to have reason to value. For the residents of the catchment, it was important that they could participate in the decisions and activities of the catchment and have an active part to play in what happens in the catchment (see p. 80 of this thesis). This is also important to the Tsitsa Project and is regarded as one of the change domains (agency) (Botha et al., 2017).

Polycentric governance, as defined by Carlisle and Gruby (2017, p. 2), is “a complex form of governance with multiple centres of decision making, each of which operates with some degree of autonomy”. Polycentric governance is one of the change domains of the Tsitsa Project (Botha et al., 2017). Residents also expressed that they want to be able to participate in the decision-making about the catchment and the development that will affect them (see p. 96 of this thesis). This relates to sustainable land-use management.

Sustainable land-use management is defined by the United Nations as “the use of land resources, including soils, water, animals and plants, for the production of goods to meet changing human needs, while simultaneously ensuring the long-term productive potential of these resources and the maintenance of their environmental functions” (*Sustainable Land Management: Land & Water: Food and Agriculture Organization of the United Nations*, 2019). Sustainable land-use management is important for both the RUIT and the residents of the catchment. For the Tsitsa Project, it is one of the change domains (Botha et al., 2017). For the residents, it has a direct impact on sustainable livelihoods (see p. 92 of this thesis). Sustainable land-use management is crucial for the maintenance of healthy ecosystems that can provide ecosystem goods and services to the residents of the catchment.

Access to natural resources is another important factor contributing to livelihoods. Access to resources is closely related to people’s livelihoods and can help to reduce people’s vulnerability. Bauman (2002) noted that it is access to resources that give people the capabilities to pursue livelihood strategies. The Tsitsa Project is specifically interested in residents’ access to natural resources that enable them to pursue sustainable livelihood strategies. For residents it was also important that they have access to natural resources as well as the means to utilise these natural resources such as access to potable water, grazing and wild herbs.

The relationships between the above factors are non-linear and mutually reinforcing (as can be seen in Figure 5.5) and in the Tsitsa Project’s ToC (Figures 5.2, 5.3 and 5.4). For example, access to resources (such as grazing) depend on healthy ecosystems. Fertile lands and sufficient vegetation cover are needed for grazing. The healthier the ecosystem, the more resources (in this case grazing) there will be, provided the resources are sustainably managed. Such sustainable land management would be enabled by polycentric governance. Polycentric governance can also help increase agency, and agency will in turn reinforce polycentric governance. Polycentric governance, sustainable land management and access to resources are mutually reinforcing. People cannot sustainably manage land to which they do not have access. To manage land sustainably, they need decision-making power which requires agency and polycentric governance. All the other factors can increase agency, and agency can increase all the other factors. Additional factors needed for access to resources, such as policy and law, are not directly addressed by the Tsitsa Project and are therefore not included in the change pathway. Other factors that are believed to be related to the factors above, and are addressed by the Tsitsa Project, include:

a) Opportunities to participate in collaborative decision-making about sustainable resources and sustainable land management, access and opportunities (see p. 80 of this thesis), and
b) Capacity to participate in sustainable resources / land management and decision-making (see pp. 74-75, 91-92 of this thesis).

As discussed in Chapter Five, these factors are embedded in the principles of the Tsitsa Project for participatory and polycentric governance (principle 2) and to work in collaborative, reflexive, adaptive and learning oriented ways (principle 4) and to create enabling conditions for equitable participation by multiple stakeholders with a particular commitment to meaningful engagement with local communities (principle 5) (see section 5.2).

Opportunities to participate in collaborative decision-making about sustainable resources / land management, and access to resources were hugely important to the residents of the catchment. For residents, it was important that they are adequately informed about local development and have the opportunity to share their views, ask the necessary questions and give their input (see pp. 79-80 of this thesis). For the Tsitsa Project, it was also important that participatory processes are a principle (principle 5). However, in order to be able to fully participate in collaborative decision-making, residents should have the capacity to do so.

Education, training and learning were regarded as an important factor by the residents of the catchment (see pp. 80-81). Residents regarded it as important to have their capacity developed to be able to utilise the opportunities available to them. For residents to actively participate and have agency in this area, it is necessary that they have access to capacity building opportunities that will expand their existing knowledge to be able to successfully manage the natural resources. For the

RUIT, it is important that knowledge is not taught in a top-down manner, but that a process of co-engaged learning is followed where the RUIT can also learn from the local experiential and indigenous knowledges of the residents of the catchment.

In the next section, I present the chosen indicators based on this change pathway. Indicators were selected for each of the factors identified in the change pathway (see Figure 5.5) to play an important role in helping to achieve the ultimate goal of improved well-being.

6.4 Limitations and guidelines for using the social indicators

The social indicators are designed to act as signals along the change pathway to inform the Tsitsa Project of the progress, or lack thereof, towards achieving the goals and objectives of the programme. The data collected through the indicators are not believed to be able to give an indication on their own of whether goals have been achieved or not. Nor is the data able to give the necessary insight about why progress has been made or not. Thus, the data collected through social indicators is meant to be used in collaboration with other data sources such as back to office reports, quarterly reports, and research case studies among others (Botha et al., 2017). Combining quantitative data, collected by the monitoring of the social indicators with qualitative data from other sources, will help to establish a more holistic understanding of the trends observed in the catchment (Foss & Ellefsen, 2002). This more holistic understanding can help the RUIT to better understand what is working under which circumstances in the Tsitsa Project. This can further facilitate learning. The indicators developed in this study will be used in combination with the biophysical indicators (not discussed in this dissertation) to assist in the participatory monitoring and evaluation of the outcomes and impacts of the Tsitsa Project. Community liaison officers will be responsible for collecting the data, using the social indicators presented in Section 6.3.

The indicators will be used in a CSES. A CSES is constantly changing and it is important that the PMERL team is also adaptable according to the changes they observe in the catchment. This means that these indicators are not set in stone. These indicators were selected based on data currently available. As the project develops and the PMERL and RUIT learn more about the residents of the catchment and their valued beings and doings and their perceptions of conversion factors and structural constraints, as well as how interventions are impacting on these factors, it may be necessary to adapt the chosen indicators to consider new insights and changed understandings or agendas. Thus, as the understanding of the change pathway changes or are adapted, it may be necessary to adapt the social indicators accordingly. Therefore, it is necessary to review the social indicators periodically.

The indicators presented here were designed to monitor the work done by the Tsitsa Project at present. At present, the RUIT has decided to focus its interventions on specific nodes and expand the project from there to the wider catchment. Thus, the indicators as presented here are framed for monitoring in the nodes. When terms like the number or percentage of residents are used, this refers to the percentage or number of residents in the nodes where the Tsitsa Project is implementing activities. The framing of these indicators should thus be adapted as the project expands and the framing of the indicators becomes inappropriate for the scale at which the project is being implemented.

Much of the data needed to inform the indicators will be collected by community liaison officers (CLOs) conducting surveys in the nodes where the Tsitsa Project is actively working. Based on the findings of residents' valued beings and doings, the participation of these residents as CLOs in the evaluation process is in itself an important valued being and doing. It was important for the residents of the catchment to know about, understand and participate in the development activities in the catchment. Using local residents to participate in the evaluation addresses this. In addition, the CLOs will participate in capacity development to help prepare them with the necessary skills, knowledge and understanding to be able to conduct these surveys. 'Training, education and learning opportunities' was another important conversion factor identified by residents that could enable them to achieve their valued beings and doings. If CLOs participate in these capacity building opportunities this will also help to ensure consistency in how the surveys are conducted. Such consistency is needed to ensure validity and reliability in the survey results. Thus, through learning from the residents of the catchment what their valued beings and doings are, the RUIT also learnt how they can implement the evaluation of the Tsitsa Project in such a manner that it takes into consideration the residents' valued beings and doings. More can be learnt from a group of residents actively involved in the evaluation of the Tsitsa Project as they share their insights on what is happening in the catchment.

In the next section, I present an example of an indicator protocol. This protocol will also aid the PMERL and capacity development teams to understand the capacity development and data collection needs to gather data that can inform these indicators.

6.3 Social Indicators

Based on the change pathway (section 6.2, Figure 16), indicators were selected for each factor. The factors, e.g. well-being or sustainable land management, are the intended impacts and long-term outcomes the Tsitsa Project wants to achieve. The indicators will act as signposts of progress made towards the impact and long-term outcomes. Monitoring these signposts can act as indications of what is happening in the Tsitsa Project, enabling the RUIT to respond to these changes (or lack of change) and intervene where necessary. Thus, it is possible for the RUIT to learn about the outcomes and impacts of their activities in the catchment based on the data gathered through the monitoring based on these social indicators.

Well-being:

- The percentage of residents reporting they can live a good life in the catchment
- The percentage of residents who feel they should leave the catchment to earn an income

Sustainable livelihoods:

- The percentage of residents earning an income from sustainable livelihood opportunities in the catchment

Personal safety:

- The percentage of legal, community supported policing and security initiatives responding to crime
- The number of livestock theft cases reported

A sense of inclusion:

- The percentage of residents satisfied that their voices are adequately represented in the decision making and planning processes of the catchment
- The percentage of women and youth participating in governance structures
- The percentage of land users who feel respected as a resident of the catchment whose voice counts

Sense of cooperation:

- The percentage of land users satisfied that they are working together to achieve agreed upon goals, for example, residents are satisfied with herding agreements on livestock
- Residents' level of satisfaction with the relationships they have with the Tsitsa Project organisational and governmental stakeholders

Agency:

- The percentage of land users with ownership and decision-making power in the planning and development of initiatives in the catchment
- The percentage of residents who are self-employed

Polycentric governance:

- The percentage of women and youth participating in governance structures
- The percentage of land users with ownership and decision-making power in the planning and development of initiatives in the catchment

Sustainable land-use management:

- The percentage of civil society members participating in the management of the landscape and CSES, using a combination of indigenous, experiential and scientific knowledge

Access to natural resources:

- The percentage of households close to potable water
- The percentage of residents with sustainable access to benefits of natural resources and ecosystem services among the general population of the catchment

Opportunities to participate in collaborative decision-making:

- The percentage of residents satisfied that they have access to information and knowledge of opportunities
- The percentage of land users participating in governance structures in the catchment.

Capacity to participate in sustainable resources/land-use management:

- The percentage of residents feeling that the education and training opportunities open up local livelihoods and green economic opportunities for them
- The percentage of land users who have participated in capacity development opportunities and consequently secured employment

6.5 Social indicator protocol

The indicator protocol presented here is a basic protocol that can be elaborated further if required.

An indicator protocol is a tool that can clearly define what the indicator has to measure, why it is important to measure that indicator, the scope of what the indicator will measure and the data sources that will be used to collect information on the indicator (Pivotal/monitoring-indicator-protocol, 2019/2019). The purpose of the protocol presented here is to clearly define:

- What the indicator is meant to measure,
- The reason for monitoring the indicator,
- The scope of the indicator, what it includes and excludes, and
- The sources of data for the indicator.

Indicator	Definition	Utility	Scope	Data Sources
Well-being				
Percentage of residents reporting they can live a good life in the catchment	Well-being is understood as being able to live a life that one values and has reason to value.	It is important to monitor the extent to which residents are able to live a life they regard as good in the catchment to gauge the impact of the programme on their overall well-being.	Residents refers to all land using residents who reside in the catchment regardless of their age, gender, occupation, or wealth.	Data to measure this indicator would be obtained from surveys conducted with residents in the catchment.
The percentage of residents who feel that they should leave the catchment to earn an income	Land users are those individuals who are partially or completely or potentially dependent on natural resources and ecosystem services to earn an income.	It is important to monitor the extent to which land users are able to make a living in the catchment whilst remaining in the catchment, the place they regard as home and where many of their families reside and would otherwise be left behind.	Land users include out of school youth (18-35 years of age) and adults who could be earning an income from natural resources and ecosystem services at any level ranging from subsistence to commercial farming.	Data to measure this indicator would be obtained from surveys conducted with land users in the catchment.
Sustainable Livelihoods				
The percentage of residents earning an income from	The income can be partial or the total income enabling land	The lack of an income, or an income too small to survive is	The number of residents residing in villages in communal areas	Data sources will include surveys with land users on their income

sustainable livelihood opportunities in the catchment.	users to better meet their financial needs that can contribute to their sense of well-being.	regarded by residents as a reason why they are unable to live a full life that meets their needs in the catchment. Supporting enabling conditions that can enhance land-users' ability to earn an income in the catchment, now and in the future can improve the well-being of land-users in the catchment for current and future generations.	who are earning an income from sustainable, green livelihood opportunities in the catchment. Sustainable, green livelihood opportunities refer to income generating activities that will not destroy the potential to earn an income from these green livelihood opportunities for future generations.	and how their income was generated. Programme documents and reports can also be used to track the number of households participating in green livelihood opportunities and earning an income from it.
Safety				
The number of legal, community supported policing and security initiatives responding to crime.	The number of legal, community supported policing and security initiatives that respond to crime and land users feel are making a positive contribution to the safety and security of the residents in the catchment, reducing the crime that is experienced.	Land users in the catchment expressed their concerns with the high levels of crime in the area, ranging from livestock theft and physical abuse and murder. They want to be able to live a life free of emotional or physical abuse.	Any legal, community supported policing and security initiatives that aims to address the crime that is experienced in the community.	Survey questions to residents and community leaders. Data from Tsitsa Project reports and documents commenting on activities and initiatives in the catchment.
The number of livestock theft cases reported.	Starting from the baseline, fewer losses of livestock due to livestock theft.	Livestock theft can have a serious negative impact on the ability of land users to make a living of the land.	All livestock, including cattle, sheep, goats, pigs, chickens, donkeys and horses.	Official crime statistics from police and survey data from residents collected by CLOs.

A sense of inclusion				
The percentage of residents satisfied that their voices are adequately represented in the decision-making and planning processes of the catchment.	An increase in the percentage of land users' satisfaction with the manner in which they get to participate and carry out decisions about the development taking place in the catchment.	It is important to land users that they are being listened to and respected in the decision-making processes regarding development taking place in the catchment.	Local land users, including those who are traditionally voiceless, women, youth and the poor.	Surveys with land users questioning them about their level of satisfaction with the extent to which they can express their voices in the Tsitsa Project.
The percentage of women and youth participating in governance structures.	The number of women above 36 and both men and women between the ages of 18 and 35 actively participating, not merely being present, in governance structures.	It is important to both the Tsitsa Project and the land users that their voices are represented and that all land users get to express their voices, not only the traditionally powerful, older men and traditional leaders.	Women and youth include all women above 36 and youth refer to men and women between the ages of 18 and 35.	Reports and documents from governance structures and institutions. Survey data from surveys conducted with women and youth.
The percentage of land users who feel respected as a resident of the catchment whose voice counts.	An increase in the self-reported sense of respectful engagement experienced by residents of the catchment as someone whose opinion and input are being taken seriously.	In order to continuously develop and increase the levels of participation if land users in the engagements and activities of the Tsitsa Project, it is important that land users feel respected and listened to.	Land users are all land users in the catchment regardless of where they reside, their age, gender, status or income.	Data sources are self-reports from land users gathered during surveys conducted with land users in the catchment.
Sense of cooperation				
The percentage of land users satisfied that they are working together to achieve agreed	Land users can propose different solutions to suggested challenges experienced and	Land users value being able to work together with each other and coming up with mutually	Land users are all land users despite where they reside, their gender, age or income.	Survey data enquiring about land users' level of satisfaction on them working together with

upon goals, for example, residents are satisfied with herding agreements on livestock.	reach mutually agreed upon goals and work together to achieve these goals.	beneficial solutions to the problems they experience and supporting each other where they can.		other land users to reach a mutually agreed upon goal. Survey data enquiring about the number of initiatives that require land users to work together.
Residents' level of satisfaction with the relationships they have with the Tsitsa Project organisational and governmental stakeholders.	The level of satisfaction reported by land users with regard to the type and quality of relationships they have with the Tsitsa Project organisational and governmental stakeholders.	In order for land users to participate in the meetings and other activities of the Tsitsa Project, it is important that the programme has relationships with the land users of the catchment.	Land users are all land users of the catchment regardless of where they reside, their age, gender, status or income. Tsitsa Project organisational and governmental stakeholders are all those stakeholders involved with the Tsitsa Project.	Data from surveys enquiring about land users' level of satisfaction with the relationships they have with the Tsitsa Project organisational and governmental stakeholders.
Agency				
The percentage of land users with ownership in the decision-making and planning of development initiatives in the catchment	Land users are those individuals who are partially or completely or potentially dependent on natural resources and ecosystem services to earn an income. Having ownership in the decision-making and planning of development initiatives in the catchment means that land users do not only have a say in what they want but have	To improve people's well-being, it is important that the initiatives chosen reflect what are important to the community and is executed in ways that are respectful of their customs and cultures.	Land-users include all people partially, completely or potentially making a living of the land regardless of their status, age, gender or income.	Data sources for this include reflection reports from community meetings, and surveys conducted with land users in the catchment

	authority in all the decisions being taken on activities and how activities should be carried out.			
The percentage of residents who are self-employed.	The number of residents who are earning a sufficient livelihood by utilising opportunities available to them in the natural or physical or social environment to earn a livelihood.	Being self-employed and utilising income opportunities without being dependent on other individuals or institutions to earn an income speaks of a level of independence to act in an environment for one's own best interest to earn a livelihood.	Residents refer to all residents of the catchment regardless of level of income, gender, status, age or place of residence.	A survey enquiring about the number of residents who are self-employed.
Polycentric Governance				
The percentage of women and youth participating in governance structures.	The number of women above 36 and both men and women between the ages of 18 and 35 actively participating, not merely being present, in governance structures.	It is important to both the Tsitsa Project and the land users that land users have their voices represented and that all land users get to use their voices, not only the traditionally powerful, older men and traditional leaders.	Women and youth include all women above 36 and youth refer to men and women between the ages of 18 and 35.	Reports and documents from governance structures and institutions.
The percentage of land users having ownership and decision-making power in the planning and development of initiatives in the catchment.	An increase in the weight that land users' voices and decisions carry in the planning and execution and management of activities in the catchment.	It is important to local land users that they are being recognised as the residents of the catchment who are directly affected by the development decisions and activities that take place in the	Land users include all land users regardless of their status, age, gender or income.	Surveys questioning land users' experience and level of satisfaction with the extent to which they feel they have ownership and decision-making power in the development

		catchment. It is important to them that they therefore are active and equal partners in the planning and execution of activities.		initiatives in the catchment.
Sustainable Land-use Management				
The percentage of civil society members participating in the management of the landscape and CSES, using a combination of indigenous, experiential and scientific knowledge	An increase in the number of land users and other residents of the catchment actively participating in the management of the landscape by using best practices derived from a combination of knowledges to ensure the sustainability of the natural resources and ecosystem services.	It is important that the local land users actively participate and use sustainable practices that contributes to the sustainable management of the landscape and CSES using the best available knowledges available to protect and ensure that current and future land users in the catchment can access the benefits of the natural resources and ecosystem services in the catchment.	Civil society include the land users, but also extend beyond them to all residents of the catchment and the practices they use that can impact on the sustainability of a healthy landscape and a functioning CSES.	Data sources are surveys with land users and other residents on the practices they use to manage the land and their immediate environment. Data can also be obtained from programme and activity documents reporting on the participation of land users and other residents and sustainable land management practices.
Access to Resources				
The percentage of households close to potable water.	Access to potable water in any form, including rain water, spring and river water and tap water within 50m.	Access to potable water is an important indicator of development and plays an important role in the workload of women and the health of the residents of the area.	Access to potable water within 50m.	Project documentation and reports and survey data from land users.
The percentage of residents with	Sustainable access refers to	Access to the benefits of	An increase in sustainable	Survey questions to the land users

sustainable access to the benefits of natural resources and ecosystem services among the general population of the catchment.	access by households regardless of their status or income, or the gender of the head of the household or familial or tribal associations for the current and future generations.	natural resources and ecosystem services can enable land users to earn an income from these resources and services if they choose to do so, increasing their capability to live a life they value and have reason to value.	benefits of natural resources (grazing, potable water, arable soil) or ecosystem services either naturally (e.g. access to potable spring water for basic needs and well-being or herbs for traditional medicine and cultural practices) or because of technology and infrastructure (e.g. irrigation systems)	of the catchment on their access to natural resources and ecosystem services.
Opportunities to participate in collaborative decision-making				
The percentage of residents feeling satisfied that they have access to information and knowledge of opportunities.	The degree to which land users are satisfied that information regarding the activities and plans of development initiatives in the catchment is being shared and discussed with them.	It was important for land users in the catchment to be adequately informed of opportunities available in the catchment and to be prioritised to be beneficiaries of the development activities before outsiders are considered.	Residents report being satisfied with the manner in which information and knowledge of opportunities are shared with them and it enables them to access these opportunities.	Survey data with land users of the catchment.
The percentage of land users participating in governance structures in the catchment.	The number of land users, those who use the land to earn an income, partially or completely, who are actively participating and expressing their voice in governance structures.	It is important to both land users and the Tsitsa Project that local land users are actively involved in the governance structures in order to enable co-ownership of the land management	Participation by land users does not refer to merely being present. Participation is regarded as actively giving input and expressing their voice in the governance structures.	Data from surveys conducted with land users on whether they are satisfied with the opportunities and room to participate in governance structures. Data from Tsitsa Project reports

		activities in the catchment.		and documentation on the level of participation by land users in governance structures.
Capacity to participate in resources/sustainable land-use management				
The percentage of residents feeling that the education and training opportunities open up local livelihoods and green economic opportunities for them.	Capacity development opportunities, including formal and non-formal education and training opportunities that equip land users with the skills and give them access to opportunities that can support their livelihoods and income earning potential.	Education and training are both conversion factors that enable people to develop capabilities as well as is a capability in itself. It is important to evaluate to what extent land users' capabilities are developed to equip them to utilise the natural resources and ecosystem services for their livelihoods.	The number of livelihoods and income generating opportunities that were accesses consequent to participating in training and education opportunities in the catchment, both formal and non-formal education and training opportunities.	Survey with land users on the extent to which they have been able to participate in education and training opportunities and whether or not they have been able to earn an income or secure employment consequent to participating in the education and training.
The percentage of land users who have participated in capacity development opportunities and consequently secured employment.	The number of land users who participated in capacity development and as a result of building their capacity, they were able to secure employment and earn a livelihood.	It was important for the local land users that they can participate in capacity development that will enable them to utilise the resources available to them.	Capacity development opportunities presented by any organisational or governmental role player in the Tsitsa catchment.	Project documents and reports; survey data from surveys with local land users.

6.3 Conclusion

This chapter has presented the social indicators for the Tsitsa Project. By following a process which incorporated (to the extent possible) both the valued beings and doings of the catchment residents and their perceptions of the conversion factors and structural constraints, and what was valued by the Tsitsa Project, I believe the indicators are agreeable to both the residents of the Tsitsa River catchment and the Tsitsa Project. This middle ground can enable PMERL to monitor and report on what is important to the Tsitsa Project and the progress made to achieve its goals and objectives. Simultaneously, PMERL can also monitor whether well-being, an important measure of human development, is improving according to the residents of the catchment and what they value.

In the next, and final chapter, I will reflect on the lessons learnt in this study and make recommendations based on these lessons learnt.

Chapter 7: How the capability approach can be used to evaluate human development in the context of natural resource management: A discussion and reflections on the research process

7.1 Introduction

This chapter concludes the thesis and aims to answer the main research question *How can the capability approach be used to evaluate human development in the context of NRM activities?* In addition to answering this question, I also reflect on the whole research process. This includes reflections on how critical realism as underlabourer helped me to frame the study, the participatory research process I aimed to follow in this study and recommendations for how the Tsitsa Project can build on the participatory process in future work. I also reflect on how the research project facilitated a social learning process for me and other members of RUIT. I further share reflections on the real-life challenges I encountered with my chosen methodology. Finally, I comment on how my orientation towards the research process and ethics influenced the research process.

7.2 Using the capability approach to evaluate human development in the context of natural resource management

The capability approach was a useful theoretical foundation for this study. The lens provided by this theoretical approach provided a perspective from which the programme could shift its view from expert opinions of the RUIT to the intended beneficiaries of the Tsitsa Project, the residents of the catchment. It was possible to have this shift in perspective because the capability approach advocates for an understanding of the valued beings and doings of the people whose human development we want to evaluate. Following the guidance of the capability approach, I was able to develop insight into what the residents of the catchment regard as a life they value and have reason to value. The capability approach also enabled me to develop an emic perspective of the factors that are perceived by the residents as enabling them to live a life they value and have reason to value, as well as the factors that constrain this ability. Sharing these findings during the participatory workshops with the RUIT and writing it up also helped me to share these learnings with the RUIT. Following this approach enabled the RUIT to develop insight into what is important to the residents of the catchment and what they would like development initiatives to address that goes beyond cash-based development and addresses issues such as cooperation between community members and between community members and development institutions, as well as education, training and learning that can enable the residents to better utilise the available resources and opportunities .

Natural resource management activities can risk becoming expert driven, especially if the programme started out, like the Tsitsa Project, as a research-based programme. In such contexts, it is then possible that indicators selected for monitoring and evaluation represent only the views and opinions of its scientific experts. Such an approach can overlook the perspectives, needs and wishes of local residents for their own development. The social indicators presented in this thesis can enable the RUIT to undertake evaluations that can give richer insight into how development has affected the residents and contributed to their well-being. With the informed understanding of the valued beings and doings of the residents of the catchment, the RUIT can also use this knowledge for the design and implementation of the evaluation plan in the PMERL framework.

From this research, PMERL can now incorporate these valued beings and doings into the design of future evaluation efforts. It was important for the residents to have the opportunity to participate in development activities and have their voices present and represented when decisions are being made about local development that affects them. Involving CLOs in the evaluation process, giving them the opportunity to participate in the evaluation process and share their insights about what they encountered during the process is one way of addressing these valued beings and doings. Following a participatory process in the evaluations of the Tsitsa Project will build on the participatory process that was started in this study. The CLOs will also be able to share their ideas on how they would like to be involved in the evaluations, and other activities, of the Tsitsa Project. Building the capacity of the CLOs and enriching their understanding of natural resource management and the specific challenges in the Tsitsa River catchment also takes into account residents' wish to deepen their knowledge and understanding of the development challenges they face in the catchment and how a programme like the Tsitsa Project aims to address this. With the CLOs based in the catchment and engaging with the residents of the catchment, they are in the position to share this knowledge through a process of social learning with the rest of the residents of the catchment. The CLOs' engagements with the residents of the catchment can also help to further enrich the RUIT's understanding of what is important to the residents of the catchment and how the initiatives speak to their needs or fails to do so. This creates a good opportunity for further social learning between the RUIT, the CLOs and the rest of the residents of the catchment. The CLOs can also be used as leaders in community engagement activities that aim to involve the residents of the catchment with the activities of the Tsitsa Project. This can be an important learning opportunity for the Tsitsa Project to understand how residents would like development activities to take place, how meetings should be conducted and how to involve the residents of the catchment in a culturally sensitive and appropriate manner to ensure participation that enables their voices to be heard and taken seriously.

The capability approach acted as a reflective mirror with which the programme theory could be reviewed. Having an understanding of residents' perspectives on how they view their lives, themselves and what they value being and doing, offered a lens through which to interpret the Tsitsa Project's programme theory, goals and objectives. The lens of the capability approach guided my interpretation of this and how the Tsitsa Project's understanding of change and their goals and objectives relate with the valued beings and doings of the residents of the catchment. It was encouraging to learn through this process that the goals and objectives of the Tsitsa Project align significantly with what is regarded by residents as a life they value and have reason to value. It also informed the programme and the RUIT of areas that are of great concern or importance to the residents which we may have to pay more attention to should we wish to make a positive impact on residents' perceived well-being in the catchment. This includes aspects around crime and access to basic services such as good quality education and lifelong learning and healthcare.

Having a localised, person-centred understanding of how the residents view their lives, themselves and the context in which they live, acted as a social learning exercise for the RUIT team. I was able to develop an understanding of how the residents view themselves and the context, including the natural and social environment, in which they live through this research process. For example, how important it is to them to live with their families and be able to take care of them financially. Subsistence farming does not meet residents' financial needs and limits their ability to take care of their families' basic needs. Therefore, development efforts focusing on subsistence farming is unlikely to speak to their valued beings and doings. Learning about the experiences of the residents as perceived by them can also expand the understanding of the RUIT team on their views and perspectives of the local residents and the catchment as a whole. This influences how the RUIT engages with CLOs and designs their participation and roles in the Tsitsa Project. These CLOs play an important role in continuing to deepen our understanding of what local residents want from a programme like the Tsitsa Project. Learning about local perceptions and experiences is important for the Tsitsa Project and enables it to expand its scientific knowledge base with other knowledges, such as indigenous and experiential knowledges. For social learning, not only the local residents have to learn and expand their knowledge base. Scientists, researchers, government officials and implementers also have to expand their knowledge and understanding of the catchment, the people who live and work in the catchment, and the interactions between people and the environment. Having a sound understanding of this is important to co-develop strategies and plans and to work together with a good, mutual understanding of other stakeholders' perspectives. This research was a step towards developing such an understanding that can help to co-develop natural resource management practices that are relevant and appropriate for local ways of living, customs and culture. The guiding lens and approach of the capability approach helped me to take a step closer to such an understanding through social learning. The findings of the study also highlighted how important it is to follow the principles of a participatory approach in the implementation of the Tsitsa Project. Being respected, having their voices listened to and participating in the decision making and planning processes of local development that affects them are all valued beings and doings of the residents of the catchment, as well as principles of a participatory approach.

7.2.1 Reflections on lessons learnt from working with the capability approach

Working with the capability approach posed challenges at times. The different categories of analysis – valued beings and doings, conversion factors and structural constraints – were at times very closely related, even interrelated and overlapping. Thus, it was not always clear whether something was, for example, a social or personal conversion factor. For example, a willingness to cooperate could be influenced by societal factors, such as power relations or cultural norms but it could also be related to personal characteristics, such as the belief that cooperation will result in a more positive outcome for all or could hinder chances at individual success. The literature offers limited guidance on this because of the context specific, person-centred nature of the capability approach. Robeyns (2017) defended this by saying the capability approach is deliberately incomplete. At times something like a conversion factor could fit comfortably into more than one category, for example it could be a valued being and doing or a personal conversion factor. For example, being motivated is a valued being but it could also be a personal conversion factor should one have that characteristic. Factors could also become either a structural constraint or a conversion factor based on the influence of other factors. For example, the climate could be an environmental conversion factor if the spring and summer rains come as expected. However, the climate could be a structural constraint if the spring and summer rains result in floods or are accompanied by hailstorms. To make sense of these contradictions, it was very important to understand the context in which things were shared by the research participants. Thus, the study taught me that a factor, such as a sense of community, cannot be removed from the context in which it was shared. The things that are important to people, their valued beings and doings, and the factors that help or hinder them to achieve living a life they value and have reason to value, are highly contextual and specific as to how they are understood by people. Thus, the findings from this study cannot simply be copied and applied to a different context because the local understanding and meanings of things may be different elsewhere. With a realist framing, it may be possible to draw certain conclusions about valued beings and doings in similar contexts and identify mechanisms if enough of an in-depth understanding can be achieved of enough case studies sharing similar characteristics (Pawson, 2013). In the next section I discuss how critical realism helped me as an underlabourer in the study.

7.3 Reflections on critical realism as underlabourer in the study

Critical realism and its layered ontology provided a useful lens through which to view a programme as complex as the Tsitsa Project. This ontology enabled me to gain an understanding of the complexities of the programme and how the different factors impact on each other (see Figure 5.2), as well as where the Tsitsa Project was aiming to intervene (Figure 5.3). It also allowed me to develop a visual understanding of how proposed interventions would impact on the underlying mechanisms that would affect the long-term outcomes of the project interventions (Figure 5.4) and share this understanding with the RUIT through participatory workshops. Understanding these connections and the envisioned outcomes of different interactions between these factors helped to map out how the RUIT team envisions the working of the programme and how this view fits with the valued beings and doing of the residents of the catchment, as well as their perceptions of the structural constraints and conversion factors. This enabled the RUIT to reflect on their goals and activities and how these align with the valued beings and doings of the residents of the catchment. Thus, critical realism and the belief that the real world exists and that we aim to develop a greater understanding of this real world and the mechanisms at play helped me and the RUIT to get a deeper understanding of the underlying mechanisms playing a role in the Tsitsa Project. This understanding helped us also to carefully assess all the different findings, draw conclusions and develop social indicators that take into consideration the valued beings and doings of the residents of the catchment taking these mechanisms into account.

I think critical realism was a good underlabourer to use to first help me develop a better understanding of the complex social-ecological system in which the Tsitsa Project is based. Critical realism enabled me to bring the social and ecological, with all its complexities, into one ontological model (Figure 5.2) to present an integrated understanding with the appropriate level of detail to the RUIT and other interested stakeholders. This framework can also be shared with other NRM programmes in similar contexts to broaden our understanding of the social-ecological complexities within these contexts. With a critical realist understanding it was possible to integrate social and ecological factors. Thus, by gathering and analysing people's perceptions and experiences of the world, it was possible to start to understand and share the insights developed about these structures and mechanisms that influence the lives of the residents of the catchment for better or for worse.

With regard to evaluation specifically, critical realism was a useful underlabourer to develop a bird's-eye view of the programme, make sense of its complexities and present it in a comprehensive framework that can accommodate multiple, complex interactions between different factors at play. This understanding helped me to overlay the findings from what is valued by the Tsitsa Project and the residents. Having an understanding of this helped me to develop a change pathway which helped me to pinpoint key factors for indicators that need to be monitored by the RUIT. Having knowledge of these key factors can also help guide the RUIT with the planning and design of their activities to ensure their activities take into account what are important factors of change that address the valued beings and doings of the residents of the catchment. The methodology used can also help other researchers and evaluators to develop social indicators and evaluative frameworks that take into consideration both the valued beings and doings of the beneficiaries of a programme and the goals of the programme that has to be evaluated. The methodology used in this study did not only incorporate the voices of the beneficiaries of the programme and integrate these with the goals of the programme, but developed a methodology that can be used that reflect the voices of those whose lives the programme aims to benefit to help guide the programme decision making and planning to ensure that this in fact happens. In the next section I reflect on how the participatory methodology was used in this study.

7.4 Reflections on participatory methodology used in this study

I set out to do the research for this study with the intention to follow a participatory approach. I chose this approach because it aligns with the Tsitsa Project's participatory principles (principles 4 and 5). It also aligns with my personal worldview and perspectives on how research should be conducted ethically. However, due to practical constraints I was not able to follow a full participatory approach with residents of the catchment. I was based at Rhodes University, 500 kms from the catchment, and it was difficult to access the catchment to involve the residents for every step of the way. In addition, there was the risk of research fatigue if I continuously asked residents to participate and answer questions previously posed probably without the research having direct and immediate benefit to them. In an effort to avoid research fatigue but still actively listen to the voices of the residents, I listened to the voices and inputs that residents had already shared with other researchers from the RUIT. I accessed these voices through research documents which I analysed. I then gave the residents, where possible (see sections 3.4.4., 3.4.4.1, 3.4.4.2 and 3.4.4.3) the opportunity to engage with this understanding and give input with regard to whether this understanding reflected what they regard as their valued beings and doings, structural constraints and conversion factors. This not only gave them the opportunity to share their perspectives and experiences, but also guided my interpretation of the findings.

While there has tended to be an overemphasis on particular activities as being more participatory than others, in what some have called the tyranny of participation (Cooke & Kothari, 2001), in implementing a participatory approach, it is more important for the researcher to adopt the behaviour of a facilitator and listen carefully rather than slavishly following certain activities (Kumar, 2018). I was willing to be guided by the research participants and wanted to truly understand their point of view. The focus was on respecting the participants and their voices in an ethical manner in a process of open communication always showing “a sense of enduring care and carefulness” (Chevalier & Buckles, 2013, p. 256) in my interactions with them. Furthermore, I resisted romanticising the participants’ voices. I recognised that the residents of the catchment are not a homogenous group and respected the different views that were expressed. I tried to reflect the wide range of perspectives of the residents of the catchment and incorporate all these voices in my view of the valued beings and doings of the residents of the catchment.

Following the principles of a participatory approach helped to guide my orientation and stance towards the research participants. These principles made me acutely aware of the importance of actively listening to the voices of the residents of the catchment, as reflected in the data. When engaging with research participants, both the residents of the catchment as well as the RUIT, I focused on learning from them about the catchment residents’ valued beings and doings and what the RUIT understand as the goals of the Tsitsa Project. Thus, I consciously adopted the role of an active learner who wanted to engage with the research participants to understand what they shared from their points of view and where possible, I checked my understandings with the research participants (see sections 3.4.4.3, 3.6 and 3.7). Remaining focused on the principles of the participatory approach was also important as this aligns with the person-centred stance of the capability approach. The value of following the principles of a participatory approach rather than focusing on particular participatory activities can also help to guide future engagements and research activities, including that of PMERL for the Tsitsa Project to ensure that the residents of the catchment, as well as other stakeholders are respected and listened to with a willingness to learn from their experiences and unique expertise.

Though there were challenges with following a participatory approach as recommended, every step of the way, a good start was made in learning from residents about their perspectives and experiences. This study advanced on the previous stakeholder analysis of the project (Rivers et al., 2018; Sisitka et al., 2016), going beyond knowing who the different stakeholders were, what they did in the catchment and how they were related, to now also understanding what they value being and doing, what they would like a development programme, like the Tsitsa Project, help them achieve in their lives. The Tsitsa Project, and especially PMERL, can build on this to further strengthen the participatory process followed in the monitoring and evaluation of activities within the Tsitsa Project. As mentioned, the RUIT (of which PMERL is a part) now understands how residents would like to be involved in development programmes. They want to be active participants whose voices are being listened to in decision-making and planning of development programmes and cooperation is important to them. Thus, the RUIT needs to ensure that the participatory monitoring framework takes the inputs from the CLOs seriously and incorporates their inputs, based on their local knowledge and expertise, in how we do participatory monitoring in the catchment. These considerations can inform, for example, how we plan and conduct interviews and workshops for evaluation purposes in the catchment. Because the Tsitsa Project learned what is important to the residents of the catchment, the RUIT members have started to develop and roll out activities that focus on capacity building and knowledge exchanges with the residents of the catchment, mainly through the CLOs. Thus, the learning from this study is being integrated into other activities of the Tsitsa Project that can facilitate further learning in other parts of the programme in the future. Both the Governance CoP and the Capacity Development team have rolled out capacity development workshops and knowledge exchange events between the residents of the catchment (mainly represented by the CLOs) and RUIT. These activities were focused on building the agency of the residents of the catchment and the capacity of the CLOs to be the people responsible to collect the monitoring data for PMERL. Learning is thus an ongoing process with feedback loops that connects between different research projects and CoP activities in the Tsitsa Project.

It was possible to follow a more participatory process with the RUIT members in the latter part of the research process. This process helped to facilitate learning among the RUIT members on what was important to the residents of the catchment, and what they considered as structural constraints and conversion factors. It also introduced concerns and priorities of the residents of the catchment to the RUIT which had previously not been considered a key part of the project's focus. These concerns included, for example, the issues the residents experience with crime and substance abuse, as well as access to services such as good quality education and healthcare. The focus on the RUIT had been on land restoration and had avoided degradation with little awareness of the challenges the residents faced beyond the ecological factors such as dongas and alien invasive trees. Participating in this study enabled them to learn about other constraints that are not immediately visible in the ecological sphere, such as the challenges residents face to access the necessary technology that will enable them to fully utilise the ecosystem services available to them (e.g. tractors to help them plant, irrigation systems and small dams on farms). Similarly, though the RUIT regarded cooperation and collective action as important, they were unaware that this was also a valued being and doing of the residents of the catchment. Following a participatory process with the RUIT helped to familiarise them with the PMERL processes and what the RUIT is aiming to achieve with the monitoring and evaluation of the Tsitsa Project. This helped not only to inform the RUIT members of PMERL and its monitoring and evaluation processes, but also actively involved them in the processes and the design of these processes. According to Swanepoel and De Beer (2011), following such a participatory process can help to give people a sense of ownership. This is very important for PMERL that requires each member of the RUIT to be a champion of PMERL (Botha et al., 2017). Thus, their participation in the research process was an important building block in orientating RUIT members to the active roles they need to play in the programme's monitoring and evaluation.

7.5 Reflections on lessons learnt from the research process

With this study being part of a programme being implemented, the research process had to deal with real life challenges. This included constraints with regard to costs and time. I would have liked to have been able to spend more time in the catchment with the residents and include more of their input at various stages of the research process. However, with the many practical challenges (distance and time to travel to the catchment, costs associated with travel to the catchment, potential research fatigue of research participants), I had to adapt the research process to one that was not perfect, as described in text books, but 'good enough'. The process gave me results that were good enough and would enable the Tsitsa Project to do its work well in terms of how to take a participatory approach further in their work, including monitoring as well as evaluating their work now that the social indicators are in place. However, there may have been areas where the process was not 'textbook ideal'. I believe that learning to adapt according to the constraints of the realities of the programme taught me valuable lessons on how to be adaptable but still follow a sound research process.

The research process also taught me the value of working in teams and getting feedback from team members on various aspects of the research process. In academic training, one often learns the theoretical concepts of participatory processes and teamwork. However, seldom are academic activities successful at giving one a real practical experience of a participatory and team orientated experience. However, with this study firmly embedded in the realities of the implementation and operations of an actual NRM programme, the process followed gave me a real understanding and experience of what it is like to work with a team. I had the chance to see (and be part of) how teams implement projects and work towards their goals collectively. This experience provided me with the opportunity to reflect on the real-life challenges and opportunities one encounters when working on a programme like this. I learnt that to see a research project like this through, the researcher does not work as an isolated individual. For example, I had to team up with a translator to help me during the data collection process. I also had to team up with the community engagement officer to help me negotiate access to engage with the residents of the catchment.

The history of the Tsitsa Project is firmly embedded in the natural sciences. Consequently, most of the RUIT are trained in natural science and their focal point largely remains on the natural aspects of the programme. This is also strengthened by the mandate of the main funder who regarded the focus of the project as preventing degradation of the landscape. For me, coming from a social science background, I often felt I had a different perspective of what was happening in the catchment, people's lived experiences and how this impacted on their interaction with the landscape. Thus, academic training can influence one's orientation towards a CSES or natural resource management problems. Introducing transdisciplinary training to students at an undergraduate level can help orientate future researchers and implementers of NRM programmes to have a more integrated understanding of the social and ecological factors that influence CSES.

Enabling myself (and others) to better deal with such complexity, one could develop a holistic 'systems-dynamics understanding' of the CSES one is working with. Such a systems-dynamics understanding of the different drivers can potentially help social and natural scientists to better communicate their understanding of a system to one another and to integrate these different understandings of a complex system. There could be a follow-up activity or research in the Tsitsa Project to develop a more integrated understanding of the social and ecological factors impacting on each another in the catchment. This could also be a valuable activity to orientate newcomers to the Tsitsa Project. Furthermore, as we are constantly learning more about the CSES in which we work, the Tsitsa catchment, we come to different understandings of factors and influences, and the interactions between these. Tracking these changes with a systems-dynamics understanding could be a useful exercise for PMERL for ongoing learning, feedback and strategic adaptive management. Residents' participation in such an activity would be crucial to understand their views of such a CSES as it is experienced by the residents of the catchment.

Since the study is based in a CSES, one has to accept that this system is potentially constantly changing. As the system changes, people's experiences and perceptions of the system can also change. Thus, it can be worthwhile in the future to revisit these findings and evaluate whether they are still applicable. This could potentially be tracked through a participatory monitoring, reflection, learning and synthesis process. Thus, the process also taught me that the understanding one develops through research is subject to potentially ongoing change and one should be prepared to remain flexible with a willingness to adapt with these observed changes in the system.

7.6 Reflections on my own orientation to research

I entered this research project with the intention to understand what residents of the catchment regard as their valued beings and doings, as well as what they perceive to be conversion factors and structural constraints. Facilitating a process in which I and the rest of the RUIT could learn from the residents of the catchment was very important to me. However, the realities of funding, deliverables and terms of reference forced me to explore a process where the operational realities and challenges of a funded programme had to be integrated with the voices and perceptions of the residents of the catchment. Though I always envisaged doing this, the process of integrating what was important to the Tsitsa Project with what was important to the residents proved to be more complex and challenging than expected.

Due to the challenge of the distance to the catchment, as well as budgeting constraints, I could not have residents of the community present at the later engagement where RUIT participated in voting for their desired social indicators. I thus had to act as an advocate for the voices of the residents. This forced me, time and again, to revisit the data gathered from the residents. Repeatedly revisiting the voices and perspectives of the residents helped me to distinguish between my ideas, the ideas of the RUIT and those of the residents. This process taught me the importance one's orientation towards the data and one's intention of how to use the data. For me, it was crucial to let the data speak for itself thus allowing the residents' voices to come through it. This was important to me because of my own orientation towards people and research. This orientation is also consistent with my own valued being and doing of being an ethical researcher who is true to my agreement with the research participants. My agreement with them was that I wanted to get their input in order to reflect their perceptions in the social indicators and ensure the social indicators took into consideration their valued beings and doings and the factors they considered to be structural constraints and conversion factors. At times this required me to stand strong against opposing views where RUIT saw priorities very differently to how the residents of the catchment viewed them.

I had to revisit the analysis process several times. I came up with different versions of both the theory of change and change pathway and discussed these with my supervisor and RUIT who were familiar with the programme, the research process and the findings. Getting feedback and inputs from colleagues and my supervisor also helped to keep me on my toes and necessitated double and triple checking my interpretations and findings. Thus, a participatory process can also help one to validate the accuracy of one's interpretations. At times it was frustrating to revisit the data and the findings and have to present it repeatedly. However, I hope that the outcome of this process, though not perfect, can give a more accurate picture of the residents' valued beings and doing based on our current understanding of the perspectives and experiences of the residents of the catchment than any previous perceptions of the Tsitsa Project.

The above also bring a question to mind: What is ethical research? For me, being ethical meant that I had to protect the more vulnerable people participating in the research project. They were typically the residents of the catchment. This meant protecting and respecting their identities. I also had to be ethical in representing what residents told me in a manner that accurately reflected the meaning within the context in which they shared their experiences and perspectives with me. Keeping a research journal and keeping track of what was happening during the interviews and workshops helped me to do this. Revisiting the interview transcripts, notes and reflections from these and the workshops helped me to give what I hope is a more authentic representation of residents' perspectives on their valued beings and doing, as well as what they perceive to be conversion factors and structural constraints, than a non-iterative process might have produced.

7.7 Conclusion

This chapter concludes the thesis and the research process. Though it is the end of this process for this thesis, the process will be ongoing with the PMERL team as they start to implement the monitoring of the social indicators (and biophysical indicators not presented in this thesis). The PMERL team can build on the lessons learnt from this study in their implementation of their monitoring and evaluation framework. Findings from this study can also be employed by other CoPs in the Tsitsa Project to ensure that their activities take into consideration the valued beings and doings of the catchment and address the structural constraints and conversion factors as they are experienced by the residents of the catchment.

In general, I thoroughly enjoyed the research project. Though it was very challenging at times, I learned a considerable amount about the process of developing social indicators and the theoretical frameworks with which I worked. In addition, I also gained much experience and knowledge about the realities and challenges of working in NRM projects and how one could potentially navigate these challenges. I hope that these lessons can also help other researchers to think about and engage with similar challenges in fruitful ways. In conclusion, I hope this study offers other monitoring and evaluation practitioners a useful option on how one can develop social indicators that reflect and take into consideration what beneficiaries of a development programme regard as important to them to be able to live a life they value and have reason to value.

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Appendices

Appendix 1: Letter of invitation to participate in the research (English)

Dear _______________

Re: Invitation to participate in a research study

You are invited to participate in a research study entitled *Developing Social Indicators for Evaluation of Natural Resource Management Programmes Using a Capability approach, in the Eastern Cape, South Africa*. The aim of this research is to develop social indicators for the natural resource management project, the Tsitsa Project (formerly known as NLEIP), that will reflect the valued beings and doings of people living in the Tsitsa Catchment, where the Tsitsa Project is active. Your participation is important to ensure that when the Tsitsa Project evaluates its activities, the criteria for evaluation truly reflect what residents of the catchment regard as important.

The research will be done through semi-structured interviews and focus group discussions. Your participation in the research can be anonymous if you so wish. The collection of this data will require between an hour for semi-structured interviews and three hours for focus group discussions.

If you agree to participate, we will explain in more detail what would be expected of you and provide you with the information you need to understand the research, when we meet for the interview or focus group discussion. These guidelines would include potential risks, benefits, and your rights as a participant. Once this study has been approved by the Ethics Committee of the Faculty of Education you will be sent the letter of ethical approval.

Participation in this research is voluntary and a positive response to this letter of invitation does not oblige you to take part in this research. To participate, you will be asked to sign a consent form to confirm that you understand and agree to the conditions, prior to any interview of focus group discussion commencing. Please note that you have the right to withdraw at any given time during the study.

Thank you for your time and I hope that you will respond favourably to our request.

Yours sincerely,

Hanli Human

Supervisor name and signature

Prof Eureta Rosenberg

Appendix 2: Informed consent form (English)

Research Project Title:	
Principal Investigator(s):	

Participation Information
• I understand the purpose of the research study and my involvement in it • I understand the risks and benefits of participating in this research study • I understand that I may withdraw from the research study at any stage without any penalty • I understand that participation in this research study is done on a voluntary basis • I understand that while information gained during the study may be published, I will remain anonymous and no reference will be made to me by name • I understand that XXX (other data collection requirements particular to this research, e.g. test results, personal information, video recording) may be used • I understand and agree that the interviews will be recorded electronically • I understand that I will be given the opportunity to read and comment on the transcribed interview notes • I confirm that I am not participating in this study for financial gain

Information Explanation
The above information was explained to me by: (Hanli Huma Researcher / Nosiseko Matati – Community Liaison Officer)

The above information was explained to me in English or isiXhosa and I am in command of this language:

Voluntary Consent	
I, hereby voluntarily consent to participate in the above-mentioned research.	
Signature:	Date: / /

Investigator Declaration	
I, (Hanli Human Researcher), declare that I have explained all the participant information to the participant and have truthfully answered all questions ask me by the participant.	
Signature:	Date: / /

Appendix 3: Semi-structured interview guide for commercial farmers and forestry

1) Name and surname (confidential – for the purpose of follow-up questions and clarifications)
2) What do you farm with? Farming sector / forestry company associated with
3) Is there any other enterprise you run?

You might find this next question strange, but the purpose of the question is for me to get a better understanding of what is important to you. It helps me to get to know you better and develop a better understanding of what you value being and doing as a person.

4) Can you please introduce yourself as you would like to be seen by others? I don't mind if this is a very positive introduction of yourself.
5) What are the most important features of characteristics of the area?
6) Tell me more about the area: what happens here?
    a. What are the strengths of the area?
    b. What are the weaknesses of the area?
    c. What are the opportunities in the area?
    d. What are the threats in the area?
7) What do you really like in the area in which you farm/practice forestry?
8) What does a good life mean to you personally?
9) How would you describe the ideal conditions for you to flourish in? / What makes the good life possible for you? Or would make it possible for you?
    a. Do you think education plays a role?
    b. Is the condition of the land important?
10) What, if anything is preventing you from having this good life or is putting it at risk? / What if anything is keeping you from flourishing?
11) What are the things you do not want to change in the area?
12) As a last question, I would like to ask you to think about your favourite proverb or idiom. It can be in any language. Please tell me what this proverb/idiom is and what it means to you.

Appendix 4: Example of a memorandum

MEMO: Environmental conversion factors – Commercial farmers

The area's potential in agriculture has still not reached its full potential and can act as a very important environmental conversion factor to convert people's capabilities into achieved functionings

The environment lends itself well to farming and enabling people to convert their valued beings and doings of being farmers in the area to achieved functionings.

The relatively inexpensive prices of the land can give people easier access to land and enable them to make a living of the land.

The beauty of the environment lends itself to tourism, so it could be an opportunity that people can explore and enhance their capabilities.

Having an environment in which people enjoy personal safety and security can enable them to expand their capabilities and convert their valued beings and doings into achieved functionings.

The condition of the land is an important conversion factor that can enable people to make a living of the land and convert their valued being and doing into an achieved functioning.

Good rainfall is a positive environmental conversion factor that enable people to make a living of the land as a farmer.

The environment has a lot of potential. You get good soil and there is potential for irrigation that could enhance their ability to make a living of the land.

The environment is suitable to a diverse range of products which you can grow to secure your livelihood and protect yourself against threats, such as poor crop prices or failed crops.

The environment has huge potential for tourism that is completely untapped at the moment, but it depends on the trajectory of the country and the ability of the country to grow economically to make those opportunities feasible.

Having wildlife in the area could not only add value and potential to tourism, it potentially also helps to prevent or limit predation on the domestic stock animals.

It is important to look after the quality of the land to continue being able to make a living of the land.

Good rainfall is an important environmental conversion factor for agriculture.

The environment lends itself to a diverse range of agricultural products with which one can farm. This can enable people to live the lives they value and have reason to value.

The beauty of the area can lend itself to tourism.

The quality of the land is crucial in enabling people to make a living of farming.

Practicing good land managing practices is important to be able to live the life you value and have reason to value.

The environment's beauty and potential to support different livelihoods, from commercial farming, to plantations and tourism is an important conversion factor.

The peacefulness and tranquillity can be a conversion factor, offering people a lifestyle that they value and facilitating tourist opportunities.

The area has a lot of potential that can be utilised to convert people's potential into capabilities and functionings

The diverse potential of the area strengthens their livelihood and adds security. It also acts as an environmental conversion factor in adding to what people could potentially do with their lives and the options they have available to them

Strengths of the area lies in its environment and the potential the environment offers for different livelihood opportunities

The cheaper prices of the land can act as an environmental conversion factor because it can give people easier access to creating a livelihood from living of the land, however, the profits in this area is also lower.

The forgiving nature of the areas environment can be an important environmental conversion factor that enables people to convert their valued beings and doings into achieved functionings.

The climate in the area act as a very good conversion factor that enables people to enhance their capabilities and convert these capabilities into functionings.

The condition of the land can be an important environmental conversion factor because it can enable you to make a living of the land and enjoy financial freedom, however, if you don't take good care of the land, poor condition of the land can also act as a structural constraint.

Appendix 5: Invitation to participate in research (isiXhosa)

Dear ……………………….

Re: Isimemo kuthabatho nxaxheba lofundo-phando

Uyamenywa ukuba uthabathe inxaxheba kufundo-phando oluntloko ithi (Refer to: Informed Consent Form – Developing Social Indicators for Evaluation of Natural Resource Management Programmes Using a Capability approach, in the Eastern Cape, South Africa). Oluphando luyimo yenxenye ye Tsitsa Project (eyayisakwaziwa njenge NLEIP). I Tsitsa Project isisikhokelo esiyintloko salo msebenzi weSebe Lwezifundo Lwemicimbi yemo yendawo (DEA) oseluqhuba kulo mmandla wakho kwiingingqi eziqokelela amanzi emvula kulo Mlambo we Tsitsa kwaye lusenokuqhuba malunga neminyaka emihlanu ezayo, ngokuphucula amathemba enkqubekeko yexesha elide emveni koko. Idityaniswe kwasekusekweni kucutho olucetyiweyo lwe ntlenga eyehlela kumadama ophuhliso eNtabelanga nase Lalini, okumele ukuba sowuvile ngalo, ngoku kubonakala ukuba (ngokukhokelwe yi DEA) oluphuhliso luyakuqhuba ngokungaphandle kokwakhiwa nokungakhiwa kwawo . Olu Phuhliso lwe Tsitsa lusekwe ekuncediseni nakwintsebenziswano yemithetho-siseko iqhutywa yintumekelelo ekhula ngokukhawuleza nokuqondandakalayo iquka izimvo, iinkolelo, ulwazi,iingcinga kwanezenzo zabahlali kangangoko zinokokwamkeleka, noxa inxalenye yamaziko ahlukeneyo akhoyo kwanamatsha bevumelana ngawo. Emsebenzini, konke oku makwenziwe ngendlela evakalayo nehlanganyelweyo efuna ingqokelela ngokulungelelanisa ukuthabatha izigqibo ezizizo, ngokomzekelo, bonke abahlali bengingqi eqokelela amanzi emvula bayabelana besebenzisa ngokulinganayo, abangentla nabangezantsi. U Phuhliso lunenjongo olusiseko yokugcina indalo esempilweni isebenza, ukuze leyo ingxwelerhekileyo ibuyiselwe ilungiswe. Loo nto yenza ukuba inzuzo yeenkonzo esizinikwa yindalo eziyimfuneko kufuyo, kugcino manzi nokuhanjiswa kwawo, ucoco lwamanzi , neendawo zolonwabo , nobuhle nokuxabiseka kwendalo kwakunye nenkolo ngokomoya engqamene nendalo nezinye iinzuzo ezininzi zingaxhasa impilo engcono kubo bonke abahlali. Uphuhliso lwe Tsitsa luzama ngaxesha-nye ukunceda bonke abahlali nee arhente ezilawula ubutyebi bendalo, ukuphuhlisa ulwazi , izakhono noqhagamshelwano oluyimfuneko, ukuphila nethemba lenkqubela ngendlela ephucula ubume jikelele nekamva lomhlaba nolawulo lwamanzi kwingingqi eqokelela amanzi emvula, nokuba zeziphi imeko zotshintho abahlali abajongene nazo , ngokomzelo- imozulu, ipolitiki nezoqoqosho. Ngokufutshane , ijonge kwikamva elingcono lothatho nxaxheba olunyanisekileyo kubo bonke abahlali.

Injongo ngokungakumbi zolufundo – kukuphuhlisa iziboniso ngokwentlalo kulomsebenzi wobutyebi bendalo, uPhuhliso lwe Tsitsa, oluyakubonisa uxabiso loluntu nezenzo zabo bonke abantu abahlali bengingqi eqokelela amanzi emvula, apho oluphuhliso luphila khona. Ukuthabatha kwakho inxaxheba kubalulekile ukuqinisekisa ukuba xa uphuhliso lwase Tsitsa luxabisa izenzo zalo , umlinganiselo wexabiso uyakubonisa ngokunyanisekileyo oko abahlali bengingqi eqokelela amanzi emvula bakuthatha njengokubalulekileyo.

Uphando lolu fundo luyakwenziwa ngodliwano-ndlebe olungakhiwanga ngokupheleleyo kwano gqaliso kumaqela eengxoxo. Uthabatho-nxaxheba lwakho lusenokungaziswa xa unqwenela ngolo hlobo. Uqokelelo lolu lwazi luyakufuna malunga ne yure kudliwano-ndlebe olungakhiwanga ngokupheleleyo kunye malunga neeyure ezintathu kudliwano-ndlebe lwamaqela agqaliweyo eengxoxo (lamaqela agqaliweyo kwakunye nexesha lakho lokundwendwela eMaclear okanye nezinye iziphaluka ezifanelekileyo, ngosuku olungokulungeleyo). Wamkelemkile ukuthatha inxaxheba kuwo omabini amadliwano-ndlebe , elobuqu kwanelamaqela agqaliweyo engxoxo, kodwa unakho ukuthatha inxaxheba kulo lube lunye kula mabini.

Ukuba uyavuma ukuthabatha inxaxheba ngokonobambiso , siyakukuchazela ngokuthe kratya omakulindelwe kuwe sikunike nolwazi oyakuludinga ukuze uqonde ngoluphando, xa sidibana kudliwano-ndlebe okanye kwingxoxo yeqela eligqaliweyo. Lemigaqo siseko iyakuquka iinzuzo ezinamandla aleleyo, nakwawaphina amandla aleleyo angena nzuzo kwanamalungelo akho njengamthathi-nxaxheba.

Oluphando lufuna ukuvunywa liQumrhu lwee Nzululwazi ngeenqobo ezisesikweni leSebe lezeMfundo phambi kokuba siqale, inkqubo esakube sinayo kakade. Xa luvunyiwe, bonke abathathi-nxaxheba bayakunikwa incwadi evunywe ngokusesikweni.

Uthabatho-nxaxheba kolu phando lukukuzithandela yaye ukuvuma ngokuqinisekileyo kule ncwadi yesimemo, ayikunyanzeli ukuba uthathe nxaxheba kolu phando. Ukuthabatha inxaxheba kolu phando,uyakucelwa ukuba utyikitye ifomu yesivumelwano ukuqinisekisa ukuba uyaqonda yaye uyavumelana neemeko, phambi kokuba kuqale naluphi na udliwano-ndlebe okanye iqela logqaliso lweengxoxo. Nceda uqaphele ukuba unalo ilungelo lokurhoxa nangawuphi na umzuzu ngexesha lofundo.

Ndiyabulela ngexesha lakho yaye ndithemba ukuba iinjongo zophuhliso lweTsitsa zikunika umdla ngokwaneleyo ukufuna uphendule ngesisa kwisicelo sethu. Ngale ndlela unganikela kwimpumelelo yethemba kweli nyathelo lokuqala lwengingqi yakho eqokelela amanzi emvula.

Owakho ozithobileyo

Hanli Human

Igama loMkhokeli

Njingalwazi Eureta Rosenberg

Appendix 6: Informed consent form (isiXhosa)

Ulwazi ngothatho-nxaxheba:
• Ndiyayiqonda injongo yolufundo-phando kwanonxulumano lwam kulo • Ndiyabuqonda ubungozi kwanee nzuzo zokuthabatha kwam inxaxheba koluphando • Ndiyaqonda ukuba ndingarhoxa kolufundo-phando naninina, kungasayi kubakho sohlwayo • Ndiyaqonda ukuba ukuthabatha inxaxheba koluphando ndikwenza ngokuzithandela • Ndiyaqonda ukuba ulwazi olufumanekileyo ngexesha lofundo lungapapashwa,ndiyakuhlala ndingongenagama yaye akuyi kubakho lungqiniso oluyakwenziwa kum ngegama lam • Ndiyaqonda ukuba (ezinye iimfuneko zokuqokelelo, nogcino okubhekiselele kolufundo ngqo , umzekelo- izphumo zovavanyo, inkcukhaca zobuqu, kwanoshicilelo ngokufota) zisenokusetyenziswa • Ndiyaqonda ndikwavuma ukuba udliwano-ndlebe luyakushicilelwa ngobuchule bombane • Ndiyaqonda ukuba ndiyakulinikwa ithuba lokufunda nokuhlomla ngodliwano-ndlebe olukhutshelweyo • Ndiyaqinisikesa ukuba andithabathi nxaxheba kolufundo ngenjongo zokuzuza intlawulo

Ingcaciso ngolwazi
Konke okungentla kucacisiwe kum ngu (Hanli Human- Umphandi / no Nosiseko Mtati – we Tsitsa Project Community oliGosa loQhagamshelwano
Konke oku kungentla kucacisiwe kum ngolwimi lwesiXhosa okanye isiNgesi kwaye ndiyalwazi olu lwimi.

Uvumelwano ngokwentando yam	
I, Uvumelwano ngokwentando yam.	
Usayino ngumthathi nxaxheba	Umhla:: / /

Isibhengezo soMphandi	
Mna, (Hanli Human –uMphandi) ndiyabhengeza ukuba ndiyinikile yonke ingcaciso kumthabathi-nxaxheba, kananjalo ndayiphendula ngokunyanisekileyo yonke imibuzo yomthabathi-nxaxheba.	
Usayino ngumthathi nxaxheba:	Umhla: / /

Appendix 7: Semi-structured interview guide for emerging commercial farmers

1) Name and surname
2) Where are you originally from?
3) Current place of residency
4) Occupation – What work do you do? How do you make a living?
5) Can you please introduce yourself to me as you would like to be seen by other? I don't mind if this is a very positive introduction of yourself.
6) In which area do you farm and what do you farm with?
7) Tell me more about the area: what happens here?
    a. What are the strengths of the area?
    b. What are the weaknesses of the area?
    c. What are the opportunities in the area?
    d. What are the threats in the area?
8) What do you really like about the area in which you farm?
9) What motivated you to start farming?
10) What does a good life mean to you personally?
11) How would you describe the ideal conditions for you to flourish in? What makes a good life possible for you? Or would make it possible for you?
    a. What role does education play in making a good life possible?
    b. How important is the condition of the land to make a good life possible?
12) What, if anything, is preventing you from living a good life?
13) What are the things you want to change about the area where you farm?
14) As a last question, I would like to ask you to please think about your favourite proverb/idiom. It can be in any language. Please tell me what it is and what it means to you.

Appendix 8: Semi-structured interview guide for past residents

1) Name and surname
2) Which village were you originally from?
3) Where do you currently reside?
4) What is your occupation?
5) Can you please introduce yourself to me as you would like to be known by others? I don't mind if this is a very positive introduction of yourself.
6) What connections do you keep with the village you are from?
7) What makes it important to you to keep this connection to the village? / Why is it important for you to keep a connection to the village?
8) What motivated you to move from the village? / Why did you decide to move?
9) How does the life you live now compare to your life in the village?
10) What does a good life mean to you?
11) What factors enable you to live a good life?
    a. What role does education play?
    b. How important is the condition of the land to make a good life possible?
12) What, if anything, is preventing you from living a good life?
13) What, if anything, do you miss about the village?
14) What do you treasure about the rural area that you would like to protect?
15) What are the things you will consider if you ever decide to move back to the village?
    a. Would you ever decide to move back to the village?
        i. If yes, tell me more
    b. What are the strengths of the village?
    c. What are the weaknesses of the village?
    d. What are the opportunities in the village?
    e. What are the threats in the village?
16) As a last question, I would like to ask you to please think about your favourite proverb or idiom. It can be in any language. Please tell me what this proverb is and what it means to you.