Quo Vadis, Resilience?

Assessing the application of a contested concept within the uMngeni Resilience Project in South Africa

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Abstract

Over the last 40 years, the concept of resilience has made a journey from the fields of ecology and psychology into the social sciences. By now, it has become a term commonly used in the international climate change adaptation and development spheres, describing the ability of an individual or a community to cope with or recover from harmful events. Critics have raised concerns about this spread, arguing that the unreflecting transfer of the concept and a lack of conceptual understanding in practice have lead to an application that tends to neglect fundamental social questions.

Using the uMngeni Resilience Project (URP) in South Africa as a case study, I inductively explored how resilience is operationalized within an actual climate change adaptation project and what implications this has on the ground. I followed a research strategy that was inspired by grounded theory and supported by sensitizing concepts, and applied a mixed method approach that combined the analysis of policy documents, key informant interviews, a community survey and a focus group meeting.

My findings show that the approach to resilience on all levels of governance (international, national and project) is shaped by ideas of local autonomy and an emphasis on participants' agency. It further aims to strengthen participants' economic wellbeing and attaches particular attention to those most vulnerable to the effects of climate change. On the ground, this leads to high responsiveness towards local suggestions and high satisfaction among participants. However, the approach of working through local structures also appears to bear the risk that project benefits do not reach marginalized community members, which would undermine the central goal of ensuring equitable access to benefits and in particular supporting those most in need.

This assessment provides various conclusions for the academic debate around resilience. Especially the significance of keeping a constant focus on vulnerability became obvious, as this could help mitigate risks like the one uncovered in this project. Furthermore, it has become clear that the project's consideration of aspects like agency and vulnerability is not based on a theoretic engagement with resilience, but results from an implicit embeddedness in underlying policies. For the future, it appears meaningful for adaptation practice to make these considerations explicit and central to project evaluation, based on a profound understanding of the problematic nature of resilience as a concept. The Resilience, Adaptation and Transformation Assessment (RATA) Framework shows potential for facilitating this process.

Keywords: sustainability science, climate change adaptation, adaptive capacity, vulnerability, agency

Word count: 13,801

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Acronyms and abbreviations

AF	Adaptation Fund
CC	Component coordinator
CDM	Clean Development Mechanism
DEA	Department of Environmental Affairs
EE	Executing Entity
ESP	Environmental and Social Policy
GEF	Global Environment Facility
IPCC	Intergovernmental Panel on Climate Change
KI1	Key informant from community 1
KI2	Key informant from community 2
KZN	KwaZulu-Natal
NIE	National Implementing Entity
PCC	Project Coordinating Committee
PM	Project manager
RATA	Resilience, Adaptation and Transformation Assessment
SAEES	School of Agriculture, Earth and Environment Sciences
SANBI	South African National Biodiversity Institute
STAP	Scientific and Technical Advisory Panel
uMDM	uMgungundlovu District Municipality
UKZN	University of KwaZulu-Natal
UN	United Nations
UNCBD	United Nations Convention on Biological Diversity
UNCCD	United Nations Convention to Combat Desertification
UNFCCC	United Nations Framework Convention on Climate Change
URP	uMngeni Resilience Project

1. Introduction

1.1. Background and goal of this research

Originating in ecology and psychology, the concept of resilience has gained prominence in climate change research over the past 40 years and has in this context also become popular in social science related fields. Since its first occurrence in a social science tagged article in 1987, the number of articles containing the terms "resilience", "climate" and "change" in the title, abstract or keywords has experienced almost exponential growth (see Figure 1).
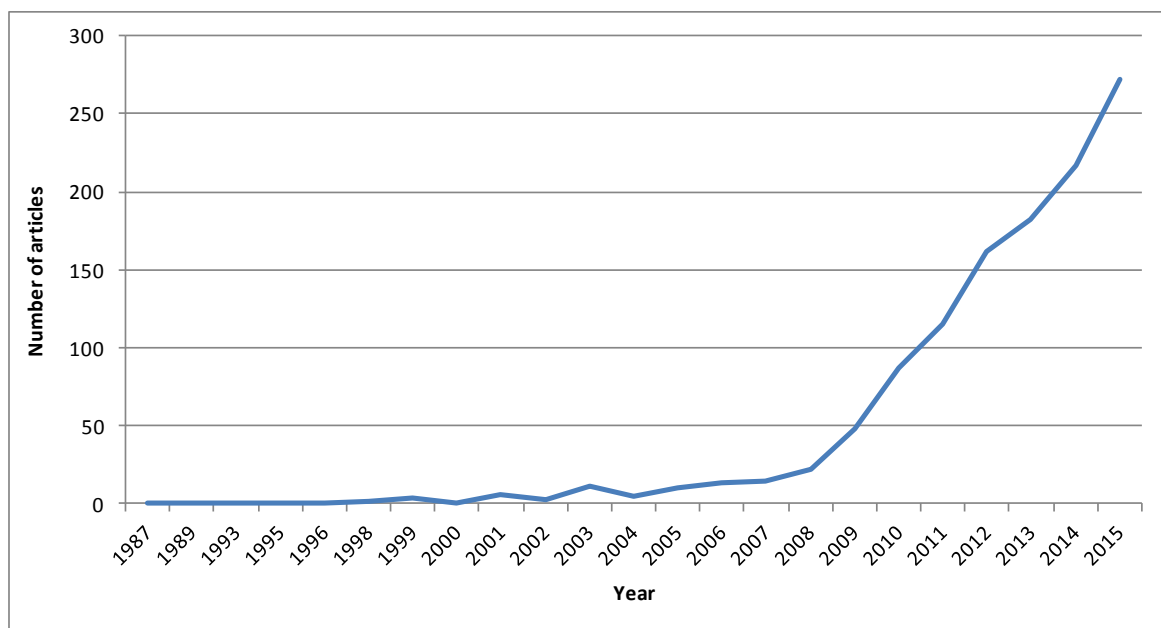
Figure 1. Articles in the subject area "Social Sciences & Humanities" on the search engine Scopus containing the terms "resilience," "climate "and "change" in title, abstract or keywords. The chart shows the increase of articles per year since the first article containing the term was published in 1987. Accelerated growth can particularly be seen around the years 2008 and 2009. (Own illustration based on Elsevier B.V. (2016))

The concept has likewise become widespread in the climate change discourse within international institutions (Brown, 2011), as expressed in the UN's Sustainable Development Goals[1] and the mandate of the Adaptation Fund[2]. However, the usage and spread of the concept also face criticism, especially from sustainability scientists and development scholars. These have argued that the

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[1] Goal 13 target one: "Strengthen resilience and adaptive capacity to climate-related hazards and natural disasters in all countries" (United Nations, 2015, Goal 13 targets section).

[2] "The Adaptation Fund … has committed US$ 331 million in 54 countries since 2010 to climate adaptation and resilience activities" (Adaptation Fund, 2015a, para. 2).

unreflecting transfer of the concept to the social sphere and a lack of conceptual understanding in practice has lead to an application that tends to neglect fundamental social questions (see chapter 2.2. in this thesis).

In this paper, I aim to contribute to this debate by providing an empirical account of how the concept gets operationalized within a climate adaptation project, the uMngeni Resilience Project (URP) in South Africa, and which implications this has on the ground.

1.2. Research questions

My research is guided by the following research questions:

RQ1: How is the concept of resilience operationalized on the different levels of governance of the URP?

- By the Adaptation Fund (on international level)
- By the South African National Biodiversity Institute (SANBI) / the South African Department of Environmental Affairs (DEA) (on national level)
- By the project management (on project management level)

RQ2: How does this materialize in the implementation of the project on the ground?

- Sub-RQ1: How do project participants perceive the URP?
- Sub-RQ2: How do the ways in which the different governance levels operationalize resilience unfold on the ground?

RQ3: How can the case of the URP inform the debate around application of the resilience concept in climate change adaptation?

1.3. Contribution to sustainability science

PNAS (2016) has described sustainability science as follows:

> An emerging field of research dealing with the interactions between natural and social systems, and with how those interactions affect the challenge of sustainability: meeting the needs of present and future generations while substantially reducing poverty and conserving the planet's life support systems. ("Sustainability Science in PNAS" section)

In this understanding, particularly adaptation projects in rural areas in developing countries deal with central sustainability challenges, as they entail strengthening low-income communities and the environment that these live on, and that displays the basis for their subsistence, against the negative impacts of a human-induced environmental problem.

In addition, the concept of resilience as such has already found its way into the vocabulary of sustainability scientists, as e.g. reflected by one of the seven core questions for sustainability science set up by Kates et al. (2001) in their landmark paper "Sustainability Science".[3] As the social dimension displays one of the core pillars of sustainability (Gibson, 2006), the application of a concept that is said to neglect social issues within sustainability science is problematic and reasons further research around the nature of the concept.

Analyzing the application of resilience within a rural climate adaptation project combines both these aspects and in this way contributes to sustainability science. I aim to pursue this topic in a problem-solving manner, gaining insights that are meaningful for science but likewise in the practical sphere.

2. Underlying key terms

The terms "adaptation to climate change" and "resilience" are fundamental for my thesis and, for this reason, need to be framed at the outset.

2.1. Adaptation to climate change

Adaptation is often regarded as one of two major response options to climate change, the other one being mitigation (Fisher, 2012). The secretariat of the United Nations Framework Convention on

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[3] Question three: "What determines the vulnerability or resilience of the nature-society system in particular kinds of places and for particular types of ecosystems and human livelihoods?" (Kates et al., 2001, p. 642).

Climate Change (UNFCCC, 2014) has framed adaptation as "adjustments in ecological, social, or economic systems in response to actual or expected climatic stimuli and their effects or impacts" ("The adaptation process" section). As this conceptualization conveys, the idea of adaptation entails a response to a specific climatic effect. Adaptation can hence be seen to be a context-specific process, closely attached to a local and temporal setting. While adapting to changing conditions has been part of human existence throughout history, the magnitude and rate of climate change have raised concerns that its impacts might exceed adaptation options in certain contexts (IPCC, 2014). This is particularly applicable when climatic conditions are already unfavorable to human life and low income reduces response opportunities - a context often found in rural communities in developing countries.

2.2. Resilience

In order to frame the concept of resilience, it is worthwhile to first get a better understanding of the original meaning and connotations of the term as such. According to Alexander (2013), resilience stems from the Latin words resilire, resilio, which can be translated as "to recoil" or "to rebound". In the English language, the term first occurred in the 16th century as the verb "to resile", used in the meaning of "return to a former position". Its noun form ("resilience" or "resiliency") was derived in the 17th century. In the 19th century, the term's connotation changed from a motion ((to) rebound) into a characteristic (the ability to do so). The term subsequently gained frequent usage in disciplines such as civil engineering, where it described the characteristic of a material to endure pressure by means of rigidity and ductility (Alexander, 2013), but also the ability of a material to return to its previous shape after stretching or bending (Thorén and Persson, 2015).

The base for the modern understanding of the term is often ascribed to 20th century psychology and ecology (Alexander, 2013) and grounds on the etymological legacy outlined in the previous paragraph. In psychology, resilience has typically referred to children's ability to assimilate early traumata (Flach, 1988). In ecology the concept was introduced by Holling (1973) in his landmark paper "Resilience and Stability of Ecological Systems" and has since been applied in various ways to describe an ecosystem's ability to recover from an external disturbance (Gunderson, 2000).[4]

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[4] In the first way, resilience is a measure for the speed with which a system returns to its previous steady-state or equilibrium after disturbance. This clearly shows reference to the original meaning of the word (recoil or rebound). In the second way, resilience is a measure for how long an ecosystem can endure external pressure before changing into a different state, which rather stresses a notion of resilience as "withstanding" than "rebounding". The third way, finally, describes resilience as a system's ability to change its shape and thus adapt when facing disturbance - which clearly contrasts the previously mentioned notions of "rebounding" and

In the late 1990s and early 2000s, scholars from the field of ecology started advocating use of the concept not only in connection to ecological, but also socio-economic systems.[5] An important driver for this motion was to find language that could be used in the environmental and social spheres and thus helps to study these in an integrated way (Adger, 2000; Levin et al., 1998).

Paying debt to this development, many recent definitions of resilience extend the concept to the social sphere. Exemplarily, the Intergovernmental Panel on Climate Change (IPCC, 2014) in its Fifth Assessment Report has defined it as follows:

> The capacity of social, economic, and environmental systems to cope with a hazardous event or trend or disturbance, responding or reorganizing in ways that maintain their essential function, identity, and structure, while also maintaining the capacity for adaptation, learning, and transformation. (p. 1772)

Scrutinizing this definition, this recent understanding frames resilience along the following elements:

- Resilience displays a "capacity to cope" and is thus framed as an ability, not e.g. an outcome.
- It entails a systemic dimension, meaning that actors are interrelated and not acting in isolation.
- It can be applied to the social, economic and environmental spheres.
- It can refer to any sort of disruption, but in particular hazardous events.
- It materializes as a response, which is reactive, or as reorganization, which can also be proactive.
- The notion of reorganization differentiates it from notions of stability or intransigence.
- However, the reorganization cannot be revolutionary; basic elements of the systems such as "function", "identity" and "structure", but also its flexibility (allowing it to keep adapting and transforming) need to be maintained.
- Resilience further entails a learning and thus forward-looking component in order to improve the system's ability to respond to future events.

"withstanding" (Gunderson, 2000). It becomes obvious that the concept of resilience can have different and partly contrasting meanings in ecology.

[5] A widely cited example of this terminological transfer is provided by Adger (2000): "Social resilience is defined as the ability of communities to withstand external shocks to their social infrastructure" (p. 361).

Following this academic extension to the social sphere, the concept of resilience has gained widespread attention and usage within research and practice, in particular within climate change adaptation and development (Bahadur et al., 2013). In an attempt to explain the popularity of the concept in these fields, Côte and Nightingale (2011) have expressed the following:

> Resilience thinking is therefore appealing because it offers a dynamic and forward-looking approach to human-environment change. Its holistic perspective and the emphasis on unpredictability, change and complexity across scales create avenues for better integrated work across a diverse range of scientific work and with lay epistemologies. (p. 478)

However, the spread of the concept in various scientific fields as well as practice and its application in relation to a wide range of entities as diverse as materials, ecosystems, human beings and societies, have reportedly also lead to inconsistent usage and thus dilution of its meaning (O'Connell et al., 2015; Olsson et al., 2015). This development is so remarkable that it even featured in mainstream media. In an article for The Guardian, Hussain (2013) called resilience "the sexiest new buzzword in international development" (para. 1). He further noted: "Instead of bringing clarity to the table as envisaged, it has brought utter confusion. Firstly, nobody really knows what resilience means, or perhaps more accurately, everybody has a different understanding of it" (para. 7). This exemplifies that currently, a universally agreed upon understanding of resilience does not exist. While some underlying aspects are prevalent across most definitions (such as the notion of dealing with shocks and the emphasis on elements of both resistance and flexibility) (Béné et al., 2012), connotations can still vary immensely.

The frequent usage of the concept in light of its apparent ambiguity has alarmed numerous scholars, especially from the fields of sustainability science and development studies. There is growing concern that an insufficiently understood academic concept gets hyped in an unreflecting manner in a sphere of life (the social world) that is inherently different from the one the concept originated in (the natural sciences). Provocative research titles such as "Resilience – an emerging paradigm of danger or of hope?" (Sudmeier-Rieux, 2014) or "Resilience: New Utopia or New Tyranny?" (Béné et al., 2012) reflect the extent of this concern.

Various points of criticism towards application of the resilience concept have been raised in this context. Without attempting to be exhaustive, the following list presents some of the most relevant ones for this thesis.

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- Tanner et al. (2015) argue that a large part of resilience literature lacks consideration of factors fundamental to human societies, such as human agency, power relations, ideologies, risk perception and cultural values.
- Olsson et al. (2015) express the view that resilience theory rests on the perspective that human societies are structured around shared rules, norms and values and thus intrinsically harmonious, and for this reason tends to disregard the prevalence of conflict and power imbalances.
- Béné et al. (2012), Olsson et al. (2015) and Côte and Nightingale (2011) further raise concern about the normative manner in which resilience is used, as this fails to capture that a societal setup can also be problematic (e.g., in an extreme case, an oppressive authoritarian regime), and strengthening resilience of this setup would not display a desirable pathway.

This debate around resilience sets the ground and context for my thesis. In order to guide my research, I use some elements that appear central in this debate as sensitizing concepts. While these are closely connected to the content of this chapter, they by definition form part of my methodology and are for this reason presented in chapter 4.2.2.

3. Background context of my case, the uMngeni Resilience Project

The self-description of my chosen case, the URP, displays the project's goal and scope in a concise manner and demonstrates that resilience not only forms part of its title (which is, in its long form, also phrased as "Building Resilience in the Greater uMngeni Catchment" (Adaptation Fund, 2015b, para. 1)), but is also at its core:

> This project aims to reduce climate vulnerability and increase the resilience and adaptive capacity in rural and peri-urban settlements and small-scale farmers in productive landscapes in the uMgungundlovu District Municipality (UMDM), KwaZulu Natal Province, South Africa, that are threatened by climate variability and change, through an integrated adaptation approach. (Adaptation Fund, 2015b, para. 1)

In addition to its scope, the project's geographical and governance contexts are crucial for understanding my research. I present both in this chapter.

3.1. Geographical context

The segment of the URP that I analyze is located in Ward 8 of Swayimane (referred to as "Swayimane" in the following for reasons of readability), a rural community in KwaZulu-Natal (KZN), one of South Africa's nine provinces. Figure 2 presents a visual indication of Swayimane's location in South Africa. This chapter presents the country, regional and local context, focusing on aspects of economy, governance and climate.
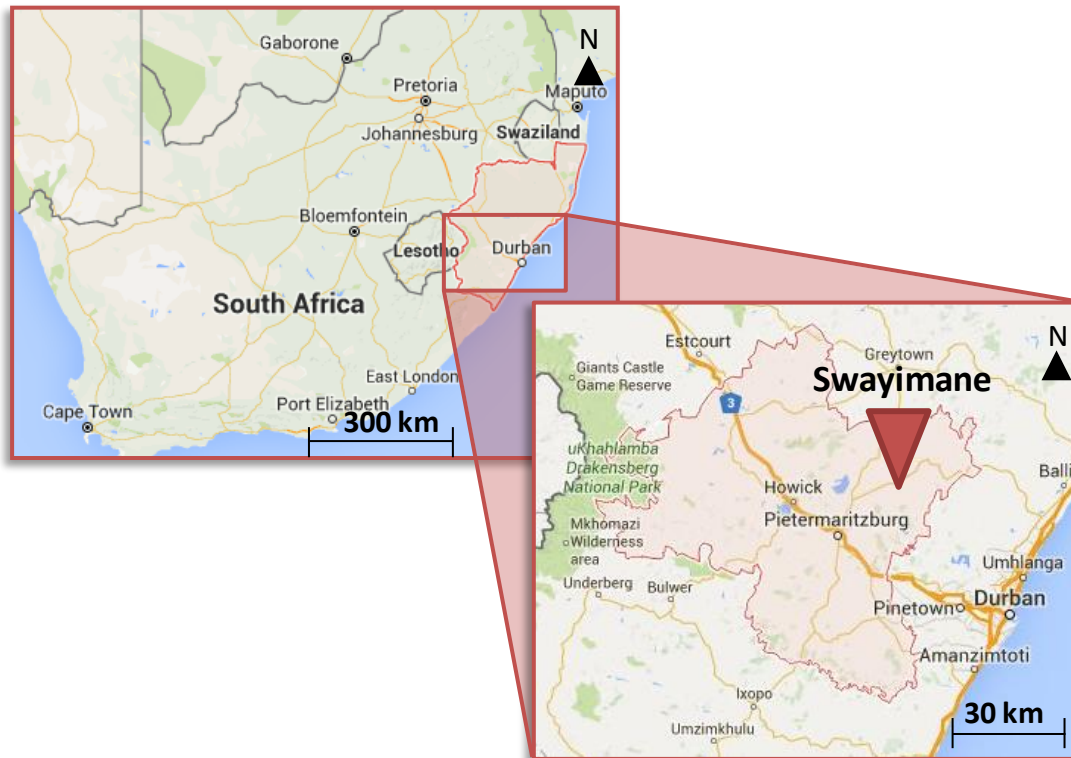
Figure 2. Location of Swayimane within South Africa. The upper left picture displays a map of South Africa with KwaZulu-Natal (KZN) highlighted. The lower right picture presents a zoom into the upper left and displays the location of Swayimane, which is located at the tip of the red arrow. (Own illustration based on AfriGIS (Pty) Ltd. (2016))

3.1.1. Country context - South Africa

South Africa displays Africa's second largest economy behind Nigeria, measured by GDP (World Bank, 2016a). It forms part of selective circles of emerging global economies such as the BRICS (informal association of Brazil, Russia, India, China and South Africa) (Foreign Policy Journal, 2011), making it a front-runner on the African continent in the global economic and political arena.

Hence, South Africa might at first sight not be regarded as most in need for international financial support. However, I argue with Kates (2000) that "if the global poor are to adapt to global change, it will be critical to focus on poor people, and not on poor countries" (p. 16). This clearly applies to South Africa where wealth distribution is highly unequal, expressed by a Gini coefficient of 63.4 (the highest among the 130 countries that got measured between 2007 and 2013) (World Bank, 2016b). This inequality has even grown since the end of Apartheid in 1994 and is correlated to ethnicity: poverty is highest among Black Africans, lower amongst Coloureds (people of mixed Black African and Asian or European origin), even lower amongst Asians and lowest among Whites. Poverty in rural areas remains significantly higher than in urban ones (Leibbrandt et al., 2010).

At the same time, the implications of climate change are already visible in the country, showing evidence for warming, increased duration of dry periods but likewise frequency of rainfall extremes . This is particularly threatening for rural communities due to their high dependence on agricultural activities and the high prevalence of informal housing (Adaptation Fund, 2014).

3.1.2. Regional context - KwaZulu-Natal

KZN is the third smallest but second most populous province in South Africa. It has been the traditional home to the ethnic group of the Zulu, and isiZulu speakers still account for 77.8% of its population (Statistics South Africa, 2012).

The Zulu have a long history as a kingdom, which formed in the early 19th century and holds status until today (Flinchum, 2015). It is recognized under the South African constitution, which acknowledges the status and role of traditional leadership (Government of South Africa, 2016). This leads to a particular governance setting in KZN, where an elective system exists in parallel to a traditional one. In the elective system, representative assemblies are being elected on municipal and district levels. In the traditional system, the king appoints representatives for the regional and local levels, called iNkosis (chiefs) and iNdunas (herdmen), respectively. These are, inter alia, responsible for the allocation of crown land to rural Zulu residents. Hierarchy between the elective and traditional system is not fully formalized and can be perceived differently by members of the different systems (project manager (PM), personal communication, March 15, 2016).

3.1.3. Local context - Swayimane

Swayimane is a rural community of approximately 7,000 inhabitants, who mostly earn their livelihood from subsistence farming. Figure 3 presents a visual impression of the area. 84% of residents have an income of less than USD 3,638 per year, which is considered "low" in the South

African context. Legislatively, Swayimane belongs to uMshwathi Local Municipality, which falls under uMgungundlovu District Municipality (uMDM), and traditionally to the governance district of an iNduna (PM, personal communication, March 15, 2016).

In terms of the climate, Swayimane is already facing short-term droughts and soil shortage impacting crop yields. Periods of flooding due to increased rainfall activity are expected in the future. As climate change progresses, these pressures are predicted to exacerbate impacts on the community (Adaptation Fund, 2014). At the time of my research, the area was reportedly experiencing the worst drought since 1982 (Eyewitness News, 2015).

Figure 3. Visual impression of Swayimane. The picture shows a field and the traditionally round Zulu houses in the background. (Own photograph)

3.2. Governance context

The governance setup of the URP can be framed as comprising three levels: International, national and project level. As the local project is not operating fully autonomously, I regard it as crucial to take its overlying governance levels into consideration when investigating the operationalization of resilience and resulting implications on the ground. These three levels of governance hence define the structure of my research.

Figure 4 provides an overview of the actors on the different levels and frames the scope of my research. I describe those actors that lie within my research scope in this chapter.
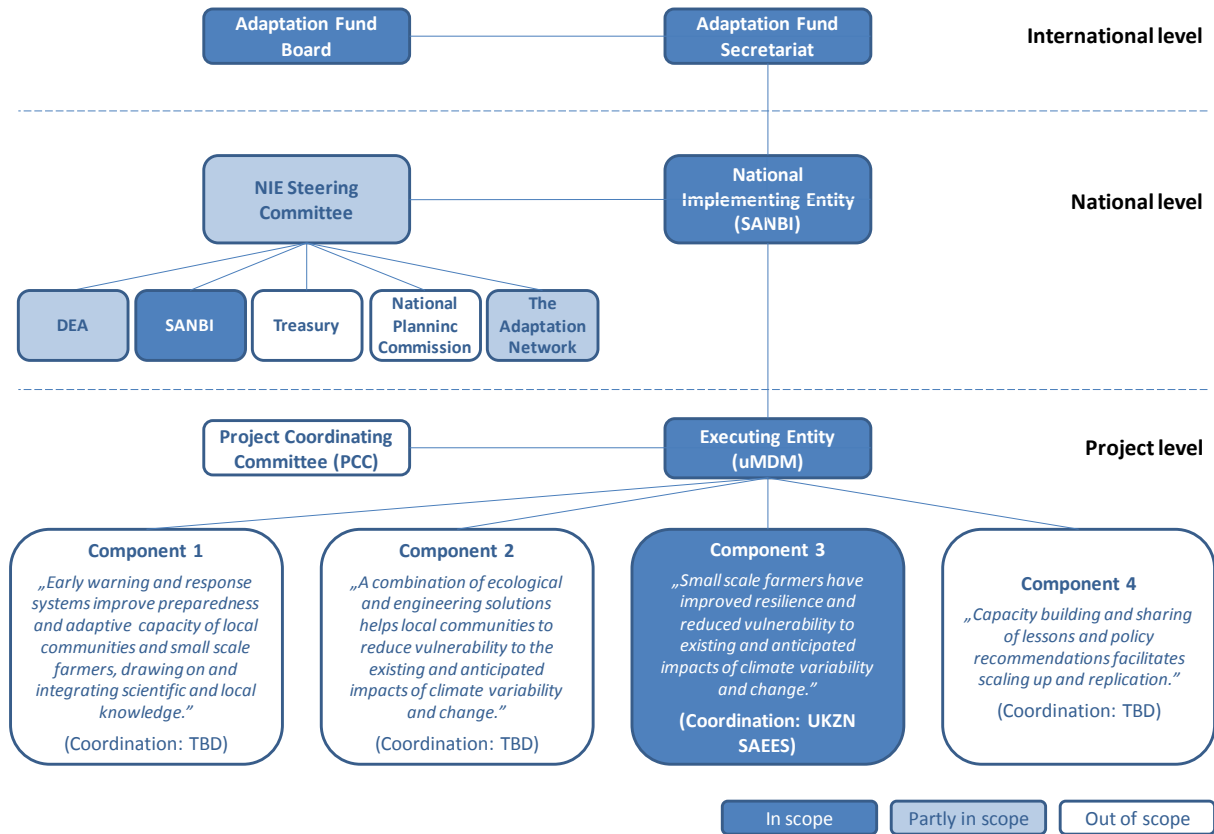
Figure 4. Governance structure of the uMngeni Resilience Project. The picture shows the main actors on each level of governance as well as the scope of my research. (Own illustration)

3.2.1. *International level - The Adaptation Fund*

The URP is funded by the Adaptation Fund (AF), which hence forms its international governance level. The AF is a special financing mechanism under the Kyoto Protocol of the UNFCCC with the mandate to finance climate adaptation projects in "developing countries that are particularly vulnerable to the adverse effects of climate change" (UNFCCC, 2007, p. 3). Currently, it funds 51 projects globally, including two projects in South Africa (Adaptation Fund, 2016). Its financial means are provided partly by governments, partly by private donors and partly by earnings generated through the Protocol's Clean Development Mechanism (CDM) (Adaptation Fund, 2015a).

The AF is governed by a Board, which consists of 16 permanent and 16 alternating members that represent Parties to the Kyoto Protocol. Inter alia, the Board is responsible for deciding on underlying policies and principles that projects funded by the AF have to adhere to, such as its results framework and Environmental and Social Policy (ESP) (Adaptation Fund, 2015c). Operational management of the Fund is conducted by a secretariat, which, inter alia, facilitates and reviews funding proposals and project performance reporting (AF representative, personal communication, April 6)

When funding projects, the AF works through National Implementing Entities (NIEs). These are state organs which have been assigned by the respective national governments of each country and accredited by the AF to serve as central coordinating and oversight body for AF-funding on national level.

3.2.2. National level - SANBI / DEA

The NIE for South Africa is the South African National Biodiversity Institute (SANBI), a public entity under the South African Department of Environmental Affairs (DEA). In this role, SANBI was initially responsible for identifying and supporting project development for fundable projects and deciding in which setup to apply for the maximum funding budget of USD 10 million that each country can receive from the AF. They decided to set up and apply with two individual projects, both of which were finally granted the funds they applied for (SANBI, 2016). Out of these two, the uMngeni Resilience Project covers approx. 75% of the total available budget, i.e. approx. USD 7.5 million. SANBI is now responsible for the overall management, financial planning, monitoring and reporting of these two projects.

In its role as NIE, SANBI is overseen by a steering committee consisting of five members, SANBI itself being one of them. Out of the other four, two were included in the scope of this thesis: The DEA, whose policies shape the national environmental strategy, and the Adaptation Network, a group of civil society organizations and individuals engaged in adaptation issues in South Africa (SANBI, 2016).

3.2.3. Project level - uMDM / UKZN SAEES

UMDM serves as Executing Entity (EE) for the URP and in this role leads its operational management. The URP is further divided into four thematic sub-components, as displayed in Figure 4. Only activities under Component 3 in one of the project's three target areas (Swayimane) are already operational (Adaptation Fund, 2014). This can be explained by the fact that the School of Agriculture, Earth and Environment Sciences (SAEES) of the University of KwaZulu-Natal (UKZN) had already been

working with people from Swayimane on food security issues since 2012, initiated by request from the community. When writing the URP proposal, uMDM had invited UKZN to form part in this. Hence, in the course of the project ramp-up in the fall of 2015, UKZN SAEES' activities became integrated into the wider project setup and became the first and so far only component of the project to become operational. Additionally, the number of project participants was increased from around 30 to around 126, out of which 103 are female and 23 are male.[6] Since the official institutionalization as part of the URP, most project activities have continued as before, and the management's goal is to make the transition as seamless as possible. The official announcement to the project members that project activities are now running under a different frame and in a wider scope is yet to be done (component coordinator (CC), personal communication, March 16, 2016).

The URP is overseen by the Project Coordinating Committee (PCC), which consists of partner institutions, the DEA, SANBI and four task teams (Adaptation Fund, 2014). Due to constraints in time and scope, the PCC as such was not included in the scope of this research.

4. Research design

4.1. Epistemological & ontological considerations

My research is driven by both critical realist as well as interpretivist stances. I elaborate on both in the following paragraphs.

From a critical realist perspective, I build on Bhaskar's (2011) ontological presupposition that a reality independent of our consciousness exists, and his epistemological assumption that our knowledge about this reality is a way to make sense of it, but does not directly reflect it. I furthermore share his view that the social sciences have the role to uncover the processes at work that shape this reality (Bhaskar, 2011). I moreover follow the critical realist acknowledgement of the existence and significance of both human agents and social structures in the social world, and that agents shape and define structures while likewise, structures constrain and form human action (Archer, 1995).

From an interpretivist standpoint, I share with Schutz (1962) that in order to make sense of our social environment, we have to acknowledge that it is interpreted and given meaning by the actors within

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[6] The high percentage of female participants can be explained structurally. The traditional division of labor in rural South African households saw female members as responsible for agricultural activities, while male members took care of livestock breeding (Advameg, Inc., 2016). In Swayimane and other rural areas, women still overtake this role, while men often work in the surrounding urban areas (component coordinator (CC), personal communication, March 16, 2016).

it. In order to fully understand this environment and the events it entails, we must hence gather people's personal viewpoints.

This ontological and epistemological basis influenced the course of my research and my selection of methods. Paying debt to my critical realist stance, I paid attention to the influence and interplay of both agents and structures within my research environment. Based on my interpretivist stance, I did not only observe this environment from the outside, but gathered the interpretations of its actors through a survey, interviews and a focus group meeting.

In addition to these principles, during my fieldwork, I followed an idea of naturalistic inquiry. In contrast to a controlled setting, where research follows a strict predetermined pathway, and potential outputs are often constrained, naturalistic inquiry aims to have results naturally emerge from real-world settings and hence predefines the direction of research and results much less (Patton, 2004). I followed this approach by e.g. interviewing and surveying project participants in their natural, familiar setting and leaving space in the survey and interviews for open and unconstrained responses. This aligned with my inductive research strategy, which I describe in the next chapter.

4.2. Research strategy

4.2.1. A research approach inspired by grounded theory

In this thesis, I pursued an approach that was inspired by grounded theory. Grounded theory involves an inductive procedure that starts from empirical data collection and aims to identify patterns or categories that emerge from this empirical engagement. It is by nature an iterative process, in which initial data collection leads to the formation of first ideas, which are then ground-proofed again through empirical work (Charmaz, 2004).

In my research, I applied the iterative procedure during my time at the project and afterwards. Insights gained through initial talks and interviews first led to ideas, which then influenced my further data collection. I likewise analyzed the data that I had collected in an iterative manner, where initial screening was followed by open coding, which again was followed by more focused analysis.

As part of my grounded theory-inspired approach, I worked with sensitizing concepts. The next chapter describes the nature and purpose of these.

4.2.2. Sensitizing concepts

The idea of sensitizing concepts was first developed by Herbert Blumer (Bowen, 2006). Blumer (1954) described how the elusive and ambiguous character of many concepts in use within social science causes uncertainty among researchers how to investigate them empirically. However, he warned to follow the axiomatic pathway and to try to pin these down into seemingly clear and tangible definitions or indicators (what he calls "definitive concepts", p. 6). In his interpretation, this would narrow the concept and miss some of the shapes it could take within the empirical world. Rather, a sensitizing concept is needed that "gives the user a general sense of reference and guidance in approaching empirical instances" (p. 7) but leaves the distinctness to the various forms of the concept in practice.[7]

Bowen (2006) has described that sensitizing concepts can well serve as foundation for an inductive approach that is inspired by grounded theory. In this way, they merely act "as points of departure from which to study the data" (Charmaz, 2003, p. 259), but, as Bowen has expressed it, do not predetermine the researcher's direction and also do not necessarily have to be applied throughout.

As Bowen (2006) further noted, sensitizing concepts can be gained from an initial literature review in the respective field. From the literature on resilience described in chapter 2.2., my initial study of policy documents and first informal talks with project stakeholders, I derived four concepts which appeared to be central to the resilience debate and likewise to my case study. These are agency as component of adaptive capacity, economic wellbeing, vulnerability, and power relations. I hence decided that these should guide my research.

In their role as sensitizing concepts, I did not predefine and preconceive my idea of these four by a narrow conceptual definition. Still, I had an underlying idea of these in mind. I give a brief account of this understanding and why I saw these concepts as central for my research in the next sections.

Agency as component of adaptive capacity

Similar to resilience, the idea of adaptive capacity originated in the natural sciences and spread into the social sciences. In biology, where it was first used, it denotes an organism's "ability to become adapted (i.e., to be able to live and to reproduce) to a certain range of environmental contingencies" (Gallopín, 2006, p. 300). My underlying understanding for this paper follows Chapin III et al. (2009),

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[7] As examples for concepts that can be used in a sensitizing way, Blumer (1954) inter alia mentions "social structure, assimilation, custom, institution, anomie, value, role, stratification or any of the other hundreds of our concepts" (p. 8).

who include the social sphere and frame it as "the capacity of actors, both individuals and groups, to respond to, create, and shape variability and change in the state of the system" (p. 23). In literature related to climate change, the concept of adaptive capacity has been presented as tightly connected to that of resilience. While the relationship between the two has been interpreted differently[8], there is an underlying notion that adaptive capacity and resilience are positively correlated (Gallopín, 2006).

In climate adaptation, fostering adaptive capacity can be approached from very different angles. According to Brown and Westaway (2011), factors that have been discussed as contributing to adaptive capacity in this regard can largely be grouped alongside three categories: resources, structures, and agency. The framing of agency that Brown and Westaway present in this regard also denotes the understanding in this paper: "Agency refers to the capacity of an individual to act independently and to make one's own free choices. One's agency is one's independent capability or ability to act on one's will" (p. 325).

Brown and Westaway (2011) noted that out of these three categories, the uppermost amount of emphasis in literature has been given to the first two, in particular "financial, technical, and institutional constraints", p. 326). Ideas that are connected to agency and thus to capacitating people to act on their will, which might be as diverse as skills, knowledge or self-esteem, remain underrepresented in this sphere.

This neglect of agency has been mirrored in critiques of the application of the resilience concept. Brown and Westaway (2011) describe that a lacking commitment to agency leads projects to view their participants as "powerless victims of environmental change" (p. 323) instead of encouraging them to shape their own future. With this in mind, I aim to watch for factors that point to the respective approach to adaptive capacity taken within the URP.

Economic wellbeing

Besides agency, resources have also been framed as component of adaptive capacity (Brown and Westaway, 2011) and in this way, indirectly, also of resilience. For my research, I have framed this idea of resources in a more general way as "economic wellbeing".

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[8] Some scholars would completely equate the two concepts; others see adaptive capacity as a part of resilience, and again others would reverse this relationship and interpret resilience as a component of adaptive capacity (see Gallopín, 2006).

Ideas related to economic wellbeing appeared central in my case study, often in connection to market access. Examining the relation of these concepts to resilience within the URP seemed meaningful due to two reasons.

First, Béné et al. (2012) have questioned the idea of a fundamentally positive correlation between economic wellbeing and resilience, as it grounds on the assumption that wealthier people are necessarily more resilient than poor. While this can certainly be the case, the authors have pointed out that numerous studies have shown that poor people can be equally or even more resilient than wealthier ones. The authors have drawn the conclusion that resilience can hence be fostered independently from addressing poverty - which indirectly creates a risk that a strong conceptual focus on resilience shifts away the focus from explicit poverty alleviation.

Second, Brown (2011) has expressed concern that the idea of economic wellbeing and particularly market access pursued in resilience programs might not necessarily benefit the poor. In her impression, these programs often follow agendas of development and economic growth in the understanding of multilateral development institutions as e.g. the World Bank. She sees this critically, as these programs have not always demonstrated the delivery of equitable benefits to the members of the societies in which they are implemented. Brown has especially raised doubt about the normative viewpoint of market integration, framing the latter as "drawing people into markets" (p. 43) and noting that it "may generate new vulnerabilities and inequalities" (p. 44).

Vulnerability

Like adaptive capacity, the term vulnerability is also conceptually tied to resilience. As the terminology of my case also draws on the idea of vulnerability, I consider it meaningful to assess how the project's resilience approach actually incorporates it.

Adger (2006) has defined vulnerability as "the state of susceptibility to harm from exposure to stresses associated with environmental and social change and from the absence of capacity to adapt" (p. 268). The presence (resilience) or absence (vulnerability) of adaptive capacity appears to frame the two concepts as opposite, which is why they are sometimes seen as "sibling concepts" (Béné et al., 2012, p. 15). However, Béné et al. (2012) have pointed at the different notions that resilience and vulnerability carry, less because these are inherent to the concepts but because of the way in which they have been applied. While resilience, as described, faces the critique of ignoring aspects of power and agency, these aspects have usually played crucial roles in the application of vulnerability. Béné et al. for this reason argue that the operationalization of resilience needs to include ideas of vulnerability to ensure power and agency are taken into consideration

Power relations

Frequent critique around the application of resilience originates in the argument that social systems (societies) are fundamentally different from ecological ones, which causes resilience to neglect elements that are substantial to the former, but not the latter. Aspects frequently mentioned in this regard are agency and, crucially, power relations.

Exemplarily, Côte and Nightingale (2011) have described that "the reliance on ecological principles to analyse social dynamics has led to a kind of social analysis that hides the possibility to ask important questions about the role of power" (p. 479). Similar points have been raised e.g. by Tanner et al. (2015) and Olsson et al. (2015) (see chapter 2.2.).

In my initial engagement with my case study, I came across the presence of traditional authorities in my research area, which I describe in chapter 3.1.2. This led me to decide to have also have a particular eye on power relations in my research context and use this as my fourth sensitizing concept.

4.3. Case study setup

Case studies are frequently used in conjunction with an inductive approach (Hammersley, 2004). They usually allow the researcher to go into depth and gather a considerable amount of data in different forms such as documents, artifacts, interviews and observations, which provide an extensive basis for exploration. In this way, they are typically well-suited to answer "how" and "why" questions (Rowley, 2002). Since I mostly pursued "how" questions in my research, a case study appeared well-suited.

While some commentators have argued that case studies rather serve to investigate one case in its uniqueness and do not allow to derive conclusions which have a meaning beyond this instance (see Hammersley, 2004), I share Flyvbjerg's (2006) argumentation that this depends on the nature of the investigated case. According to him, particularly "critical cases", which have "strategic importance in relation to the general problem" (p. 14) display potential for generalization. I classify my case as such[9]. My case can even be regarded as a paradigmatic case, as it reflects general characteristics of the train of thought within the climate change adaptation field, and for this reason offers even more

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[9] I base this on the fact that my case represents one out of currently only twelve AF-funded projects in Sub-Saharan Africa and one out of only two in South Africa, and is thus likely to serve as a role model for future projects. In consequence, the project contains a component for "sustaining, scaling up and replication of project successes" (Adaptation Fund, 2014, p. 4).

potential for exploring underlying values (Flyvbjerg, 2006). Given this nature of my case, understanding this project allowed me to derive patterns that are equally relevant to other or future AF-funded projects and can contribute to the wider debate around the application of resilience.

4.4. Methods

In the scope of my chosen case, I followed a multilevel use of approaches as described by Teddlie and Tashakkori (2010), which entails using different method types for different levels of the structure under investigation. I used qualitative data (document analysis and key informant interviews) to explore the operationalization of resilience on international, national and project management level (RQ1), and a combination of quantitative (closed survey questions) and qualitative data (open survey questions, key informant interviews and a focus group meeting) to explore implications on the ground (RQ2). Results from both RQ1 and RQ2 helped me to answer RQ3. While it is still under debate whether quantitative and qualitative data are combinable under epistemological considerations (Bryman, 2004a), I follow the idea that triangulation of data and methods increases confidence in the respective findings (Bryman, 2004b). The following sections describe the methods I applied in greater detail.

4.4.1. Analysis of policy documents

As part of my research for RQ1, I analyzed policy documents on international, national and project level. These documents are listed in Table 1.

Table 1. Overview of policy documents that I analyzed for each level of governance of the URP in the course of my research. Documents labeled "Main document" displayed the main textual source of information for my understanding of the operationalization of resilience on the respective level. Documents labeled "For further reference" were studied in the course of my research, but are not explicitly taken into account for defining the operationalization of resilience. (Own illustration)

Document name	Level	Significance for research
Adaptation Fund (AF) Results Tracker Guidance Document	International	Main document
AF Project Level Results Framework and Baseline Guidance Document	International	Main document
AF Environmental and Social Policy (ESP)	International	Main document
Pilot Programme for Climate Resilience (PPCR) Results Framework	International	For further reference
Global Environment Facility (GEF) 6 Results Framework	International	For further reference
Resilience, Adaptation and Transformation	International	For further reference

Assessment (RATA) Framework		
National Climate Change Response White Paper	National	Main document
Presentations from the South African National Adaptation Strategy Inception Workshop	National	For further reference
Project proposal document	Project	Main document

4.4.2. Key informant interviews

Likewise as part of my research for RQ1, I interviewed the representatives most closely involved in the URP for each level of governance. In addition, I had numerous informal talks with further representatives and project participants. In order to validate these perspectives by an external, civil society driven viewpoint, I also interviewed a representative of a South African civil society organization, who has been following the work of the AF and the project closely. Furthermore, I interviewed project participants with different relations to the project as part of my research for RQ2. Table 2 provides an overview about my different conversation partners and their roles. It further displays the abbreviations that I use when referring to them in this thesis.

The interviews were conducted in a semi-structured format in order to prevent imposing my own framework onto my research subjects or hindering potential response pathways that could not have been anticipated. The opportunity for respondents to answer in their own ways may further help to level the power relation between interviewer and interviewee and thus encourage respondents to be open in their responses (Mason, 2004). This approach is thus consistent with my interpretivist and naturalistic principles.

Table 2. Overview of conversation partners at each level of governance of the URP. People that I formally interviewed served as my main personal source of information for assessing the operationalization of resilience on the respective level and implications on the ground. People that I held informal talks with further shaped my understanding of the matter. Abbreviations displayed behind the role descriptions (PM, CC, KI1, KI2), are used to refer to the respective people in this thesis. (Own illustration)

Role	Level	Type of conversation
Representative from the Adaptation Fund (AF) Secretariat	International	Formal interview
Representative from United Nations (UN) Climate Finance Department	International	Informal talks
Representative from the South African National Biodiversity Institute (SANBI)	National	Formal interview
Representatives from South African Department of Environmental Affairs (DEA)	National	Informal talks
Representatives from South African academia working	National	Informal talks

on Resilience		
Representatives from further South African civil society Organizations	National	Informal talks
Project manager (PM) from uMgungundlovu District Municipality (uMDM)	Project (management)	Formal interview
Component coordinator (CC) for Component 3	Project (management)	Formal interview
Key informant from community 1 - Initiator of the project and chairperson for the project group (KI1)	Project (community)	Formal interview
Key informant from community 2 - Chairperson for the first cooperative that formed in the project (KI2)	Project (community)	Formal interview
Former member of the project	Project (community)	Formal interview
Community member not involved in the project	Project (community)	Formal interview
Further project participants	Project (community)	Informal talks
Representative from South African civil society Organization	Cross (civil society)	Formal interview

4.4.3. Survey among project participants

As a second part of my research for RQ2, I conducted a survey among project participants in Swayimane to gather their attitudes towards and impressions of the project. In total, I gathered 27 responses. An overview of survey questions and results can be found in the appendix.

For selecting my respondents, I chose a non-probability, convenience sampling method instead of a probability approach, since an exact frame of the survey population from which to draw a random sample could not be established (exact size and composition of the project group was unclear at the time of my research)[10]. Following the non-probability approach, I surveyed 18 project participants that I was set in touch with by key informant 2 (KI2) and nine which I randomly approached myself while in Swayimane.

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[10] NB. A random sample could not have been pursued anyways, as single, randomly selected participants would have been impossible to reach due to the location of their housing (not locatable due to lack of street addresses and not accessible due to lack of road infrastructure) and availability (not accessible due to external activities during the day).

Due to language barriers, survey questions were asked and responses noted and translated by research assistants who were native isiZulu speakers. Figure 5 provides an impression of this setup. Applicability of the survey in the local context was ensured by reviewing survey questions with the CC, testing singular formulations with test respondents and conducting a pilot run with one project participant.

Figure 5. Survey conduction. Two of my research assistants survey two project participants. (Own photograph)

4.4.4. Focus group meeting

As interviews and community survey both explored individual opinions, I also conducted a focus group meeting with project participants in order to observe processes within a group setting. Conducting a focus group meeting in combination with individual data observation is a common approach within social science studies (Grumbein and Lowe, 2010), particularly as it helps to uncover "behaviors, customs, and insights of the target audience" (Krueger, 2004, para. 3). The behavioral processes that I aimed to observe included basic conversation, deliberation, decision-making and knowledge-sharing. In particular, I aimed to look for hints about the power relations among the participants, specifically signs of domination or marginalization. As I wanted the focus group meeting to also be of value to the participants, I designed it as a forum for participants to exchange knowledge with regards to different crops and planting techniques. Additionally, the focus group meeting had an important political component, as it was supposed to present an open forum and thus mitigate any feelings of exclusion that might have come up among project participants due to the fact that I could not include all of them within my survey.

Simon (1999) argues that focus group meetings should consist of six to twelve participants to be effective. As the focus group meeting I held was supposed to be an open forum, however, the size of it could not be predetermined and constrained. The meeting ended up comprising 24 participants. As too big a group size can become unmanageable and might cause the researcher to lose sight of individual voices (Simon, 1999), I asked the participants to split into four subgroups of similar size in order to first have a discussion within the subgroup and subsequently in the main group. Each subgroup was accompanied by one of my research assistants in order to support the group members with note-taking and silently observe the processes described earlier.

4.5. Research limitations

The conduction and results of my research are subject to a number of limitations. These are outlined below.

Applying grounded theory in full scope in a master thesis. In contrast to the original idea of grounded theory, which implies multiple field visits or conducting the same analysis a second time with different participants (Charmaz, 2004), the scope and time of this master thesis only allowed for one period of research in the field. Pursuing grounded theory in its full shape was hence hardly possible within the given limits. However, as I aimed to work in an explorative way and could still conduct my data collection and analysis iteratively, I decided to pursue an approach which I regard as following the principles of and inspired by grounded theory despite the given constraints.

Timing of my research. At the time of my research, the URP was still in its ramp-up phase. The activities conducted in Swayimane were integrated into the URP in fall 2015, but had already been running for three years autonomously before that. As participants that already took part in the project before this point do not perceive a difference between these two periods, their reflections on the project are to a certain extent coined by experiences they had before the URP came into being.

I still considered their experiences to be viable for assessing the project's current approach for two reasons: first, activities had been running under the frame of the URP for at least around six months at the time of my research, which I considered sufficient time to shape impressions; second, the UKZN staff that is now coordinating activities under the URP had already been responsible for these activities throughout the pre-URP period, which makes it probable that their previous way of working at least to some extent resembles their current approach, especially if the transition is supposed to be seamless. However, it should be acknowledged that a) the mode of work within the community may have shifted with the start of the URP and that participants' previous experiences are thus not fully representative for the current situation, and b) that observations that I made after six months

out of an anticipated four years of project runtime are not completely representative for the approach taken within the project.

Representativeness of and openness in community survey. Representativeness of the community survey might have been affected by the fact that access to two thirds of the participants was facilitated through KI2, thus potentially limiting participants to his direct personal network. I attempted to mitigate this by also randomly approaching potential respondents. Furthermore, respondents' openness in answering my survey questions might have been impacted by other project participants in listening proximity, although care was taken that surveys were held in private between surveyor and respondent.

In addition to this, respondents might not have expressed negative feelings if they perceived me as someone connected to the project. This might have resulted from two reasons: their culturally grounded politeness, an aspect emphasized by the civil society representative, or a concern that they could experience negative consequences if they talked negatively about the project, although a formal indemnity statement was read out to each respondent at the start of the survey.

My role as a researcher. As a researcher, I necessarily exert an active influence on and within the research process. Even if I attempt to hold this role as small as possible so that the results gained in my research are as close to some sort of reality (that I acknowledge exists based on my critical realist foundation) as possible, I have to acknowledge that my research can never be completely value-free. These values influence me throughout the whole research process, from first problem formulation up to the interpretation of results (Bryman, 2012).

The interpretation of results offers particular challenges here. While I follow an interpretivist approach and hence aim to understand my research environment through the interpretations of the actors within it, I cannot prevent their interpretations from being filtered by my own (Bryman, 2012). Furthermore, having to work with research assistants adds yet another layer to this. Moreover, my close working relationship with my research subjects created feelings of empathy for them, which are likewise probable to influence research (Bryman, 2012). It has to be acknowledged that all these aspects necessarily bias my research and its outcomes.

The use of "power relations" as a sensitizing concept. Power relations appeared to be difficult to use as a sensitizing concept. The idea of sensitizing concepts entails not predetermining the researchers' viewpoint but allowing for the concept to unfold on the ground. However, when lacking an underlying conceptualization with regards to the multiple facets that power can take in its direct and indirect forms, its more explicit shapes prevail while its more subtle forms might stay unnoticed. As a

sufficiently thorough framework of power relations would have been impossible to establish in light of power only being one out of four underlying concepts for this research, it appears that the idea of power relations is difficult if not impossible to use as a sensitizing concept.

As Bowen (2006) has described, sensitizing concepts can be discarded in the research process if they prove to be unusable. However, having a perspective of power relations in mind still shaped my understanding of some of the challenges that occurred in the process, as I describe later on. For this reason, I did not discard the concept in its completeness, but treated it with the caveat that the power relations that I recognized cannot be regarded as exhaustive but as those that became prevalent on a surface level.

5. Results and analysis

The following chapter presents the results of my research and my analysis thereof. It is structured along my first two research questions. RQ1 is addressed in chapter 5.1., and RQ2 in chapter 5.2. RQ3 is not addressed in this chapter but in my discussion (chapter 6.2.1.).

5.1. The operationalization of resilience within the URP

RQ1: How is the concept of resilience operationalized on the different levels of governance of the URP?

-   By the AF (on international level)

-   By SANBI/the DEA (on national level)

-   By the project management (on project management level)

The first part of my results and analysis section describes the operationalization of resilience on the URP's different levels of governance. It should be noted that in pursuing this question, it was not always possible to clearly distinguish whether aspects are explicitly framed as part of resilience or whether they form part of actors' general approaches to climate adaptation. This has to do with the fact that these concepts melt together in practice, as I discuss in chapter 6. However, as the concept of resilience is at the core of the URP, and as the project pursues an integrated approach, as presented in chapter 3, I regard principles that are mentioned in relation to the project as representative for the operationalization of resilience.

As chapter 4 clearly defines the sources of my findings, I refrain from attaching these to single statements in this and following chapters if not quoting directly or seeing a need for an explicit

reference. Emphasis on singular terms by means of <u>underlining</u> is exclusively meant to increase readability and point the reader to central elements, while not attempting to create an exhaustive subset or fully summarizing the operationalization of resilience.

5.1.1. Operationalization of resilience by the AF (international level)

The approach to resilience that emerges on international level, especially from statements from the AF representative, can be described as deliberately kept broad. The AF purposely does not narrowly define resilience, aiming for a wide range of potential projects and local characteristics to be funded. In accordance with this, they follow a <u>hands-off policy</u> and do not micro-manage their projects based on a particular understanding of resilience but assign a great deal of independence and responsibility to national and local actors. <u>Consultations on local level</u> are supposed to shed light onto respective <u>power relations</u> and thus foster equitability in the project context. This approach illustrates a <u>commitment to the agency</u> of the respective actors, particularly countries, who are supposed to take ownership of their development and adaptation pathways.

While the layout of projects can be diverse, the AF places emphasis on some underlying principles that all projects need to follow. Amongst others, projects have to make sure not to "exacerbate existing inequities" (Adaptation Fund, 2013, p. 5) in target communities, which again infers an attention to <u>power relations</u>.

Further, the AF displays a commitment to addressing <u>vulnerability</u>, in particular addressing vulnerable members of target communities. Each project is obliged to establish "a detailed understanding of who is vulnerable and why" (Adaptation Fund, 2011, p. 19).

In contrast to the general idea of agency expressed, the outcomes that the Adaptation Fund (2011) defines in relation to "vulnerable people" (p. 5) mostly focus on the availability of physical and monetary assets, such as "diversified and strengthened livelihoods and sources of income" (p. 5). The same applies for the framing of <u>adaptive capacity</u>, which forms part of the AF's impact-level results (Adaptation Fund, n.d.). Here, it comprises four indicators: the first addresses the number of beneficiaries, the second and third address physical assets ("number of early warning systems" and "assets produced, or protected from damage" (p. 3)), and the fourth refers to monetary assets ("increased income, or avoided decrease in income" (p. 3)). In this way, vulnerability and adaptive capacity are approached more from an angle of resources than agency. They are in this way closely tied to an idea of <u>economic wellbeing</u>.

On the Fund level, the AF's results framework mostly reverts to quantifiable and comparable indicators. Qualitative measurement towards some of the underlying principles that were just described, such as decreased inequity or strengthened agency, is absent. More detailed results frameworks are supposed to be developed on project level, which again aligns with the Fund's hands-off policy (Adaptation Fund, 2011).

5.1.2. Operationalization of resilience by SANBI/DEA (national level)

Similar to the Adaptation Fund, representatives on national level emphasized an approach to resilience that builds up from the local space, as participants are regarded as knowing best about required activities. This again expresses a commitment to the agency of participants, who are seen as knowledge carriers rather than as passive receivers of help.

In relation to this, various indirect references to an idea of adaptive capacity occur, represented by its three facets as described in chapter 4.2.2. The DEA (2012) addresses resources (transferring technology), structures (setting up insurance schemes) and agency-based criteria (raising awareness). The SANBI representative expressed the ability "to cope with the impacts of climate change" (personal communication, March 17) as part of resilience, mentioning mostly structural conditions (e.g. empowering women in a patriarchic society), but also agency-based ones (seeing participants as knowledge carriers for response options).

The DEA (2012) furthermore expresses that "the most vulnerable" (p. 8) should be in the focus of resilience-building. The SANBI representative went into a similar direction, stressing the needs of individual people and SANBI's ambition to prevent responses that only benefit particular community groups. She sees an understanding of local power relations as crucial to ensure this.

The idea of resilience is further closely tied to development and economic wellbeing. For the SANBI representative, climate adaptation and resilience need to be approached as embedded in sustainable development work. Most of SANBI's principles are not defined uniquely for resilience, but stem from their understanding of development work. The DEA (2012) establishes an even closer link between resilience and economic wellbeing, seeing that "severe income distortions further limit many people's ability to build resilience" (p. 34).

5.1.3. Operationalization of resilience by the project management (project level)

In the operationalization of resilience on project level, a philosophy to help community members take ownership of their own pathway becomes prevalent throughout the underlying proposal

document and statements from interview partners. This is reflected in the ambition to choose a participatory approach over one that is "expert-driven, technology-intensive" (Adaptation Fund, 2014, p. 52). This locally-driven approach has been central to the project from its beginnings: UKZN's initial agricultural activities in Swayimane were not proactively initiated by the university, but on request from the community. Following this philosophy, the project aims to stay responsive to the local context and local suggestions. One example for this is a community garden that was not initially planned for but was included in project activities following a need expressed by participants. The CC also expressed that the project setup allowed him to be responsive in his activities himself. He sees this as a crucial attribute when working in an agricultural environment, which at times requires fast reactions to e.g. changes in weather conditions.

The idea of local autonomy also aims at strengthening adaptive capacity. A combination of structures, resources and agency is named in this regard, where agency is expressed as personal abilities and encouragement to take decisions. This is reflected in the approach of the project not to directly give money to the project participants, but to allocate seeds (resources) in order to support the participants in providing for themselves economically (agency). Likewise, the project supports participants in building cooperatives for facilitated market access and greater bargaining power towards buyers (structures). Participants are further encouraged to decide themselves which people to build a cooperative with, and also which individual pathway within the cooperative to follow - whether to farm on the community field, drive a truck, manage the warehouse or also to farm just for own subsistence and not become part of a cooperative (agency). The concept of cooperatives further expresses the philosophy that increased economic wellbeing contributes positively to resilience, which also becomes obvious throughout the project proposal[11].

As with the overarching governance levels, the idea of vulnerability also emanates from project level. Of particular importance in this regard is the following statement from the project proposal: "The project will adopt an approach that capacitates vulnerable communities to enable active participation in the project. This will enable fair and equitable access to project benefits to all participants, including marginalised and vulnerable groups." (Adaptation Fund, 2014, p. 74). This displays a linked understanding of strengthening agency, overcoming power imbalances and reducing vulnerability.

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[11] As an example, the dissemination of agro-meteorological forecasts is supposed to lead to improved production due to improved decision making and ultimately an increase in income derived from crop sales (Adaptation Fund, 2014).

As further elements of resilience, the PM mentioned strong social networks, which expresses an idea of <u>social capital</u>. Related to this, she pointed out the importance of understanding the <u>power structures</u> that affect the project, in order to ensure buy-in from the traditional authorities that govern the area. The CC brought in a <u>holistic, systemic perspective</u> to resilience, seeing e.g. the agricultural activities that he supervises in a nexus with aspects of nutrition, the socio-economic environment and biodiversity. Additionally, an idea of <u>inclusiveness</u> was expressed by the PM and the CC. This idea seems to emanate from practice rather than being outlined in the underlying policies. It is expressed e.g. in the ambition to not deny farmers participation in the project if they express an interest in doing so, even if this might exceed formally set limits[12].

Similarly to the international level, the outcome measures set for the project display a contrast to the strong emphasis on agency that is expressed throughout. These measures are mostly driven by structural factors such as "market linkages established" (Adaptation Fund, 2014, p. 17) or "training materials developed and training courses held" (p. 17) rather than for instance trying to measure the increase in participants' agricultural skills or improvements of the status of the most vulnerable members.

5.1.4. Summary: Themes emerging across governance levels

A number of key themes shape the operationalization of resilience across the governance levels. I summarize these in this chapter, first along the structure of my sensitizing concepts and subsequently beyond.

Themes related to my sensitizing concepts

The sensitizing concepts that I set up to guide my research materialized in the operationalization of resilience to different extents. This is summed up below.

<u>Adaptive capacity</u> in relation to resilience is omnipresent across the different governance levels and, amongst other elements, consistently entails a commitment to <u>agency</u>. At both international as well as project level, the representatives in the interviews expressed this commitment to agency much more clearly than the underlying results measures, which rather set their focus on structures and resources.

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[12] A situation like this occurred recently, when the project was supposed to be scaled up to 50 participants but ended up including more than double this number, as more people expressed their will to become part of it.

Economic wellbeing likewise is seen as integral to resilience on all levels. The idea of cooperatives emphasizes market mechanisms as a measure to achieve this.

Vulnerability is likewise used throughout the governance levels. In most cases, terminology along the lines of "the most vulnerable members", which are supposed to receive particular focus, is used.

In contrast to my other sensitizing concepts, differences in framing the idea of power relations among the different levels of governance emerged. International and national levels regard the identification of power relations as important to avoid increasing existing inequities, to allow for equal participation and to avoid marginalization of certain groups. The main idea hence appears to be to protect the less against the more powerful. The project level, too, displays an urge to avoid marginalization, which however materializes in the emphasis on social networks and in the aim for the project to be inclusive. Power relations are also regarded important to consider; however, the motivating factor in this case rather appears to be receiving the buy-in of those in power, respectively the traditional authorities, in order to gain their support.

Themes beyond my sensitizing concepts - emergence of a hands-off approach

Beyond the sensitizing concepts, one theme clearly emerged from the empirical data: the application of a bottom-up or hands-off approach.

This appears to be driven by two motivating factors: first, the goal to strengthen capabilities of local actors through self-dependence in decision-making[13] (this mirrors the commitment to agency); and second, the idea that local actors have a better understanding of local conditions and requirements and for this reason are in a better position to design effective measures.

Overall, representatives from each governance level were very positive about this approach. The AF representative expressed strong appreciation of SANBI's mode of work, calling them "kind of a champion amongst the countries" (personal communication, April 6), and articulated seeing no need for stricter top-down management. The SANBI representative praised the AF for this non-prescriptive approach. Likewise, the CC commended the PM and SANBI for allowing him to react self-sufficiently and comparably spontaneously on local ideas. Similarly, the civil society representative expressed the perception that both AF and NIE very actively attempt to ensure that projects bring about tangible benefits to the local populations. She experiences the URP as very consultative, as both AF and SANBI

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[13] This self-dependence is mirrored in the rather long-termed reporting processes (annual on AF level, quarterly on national level, monthly on project level) as well as autonomous financial processes (the project receives funds for five months in advance, components can decide about budget lines themselves and justify decisions afterwards) (PM, personal communication, March 15).

are actively engaging and consulting with civil society organizations: the AF regularly holds a civil society dialogue with the AF NGO Network, a consortium of NGOs following the work of the AF (civil society representative, personal communication, April 11); and the South African Adaptation Network, as described, is part of the steering committee of SANBI in its function as NIE (SANBI, 2016).

5.2. Implications on the ground

RQ2: How does this materialize in the implementation of the project on the ground?
- Sub-RQ1: How do project participants perceive the URP?
- Sub-RQ2: How do the ways in which the different governance levels operationalize resilience unfold on the ground?

The second part of my results and analysis section addresses my second research question. In particular, I examine whether the intended impact of the hands-off approach (fostering local agency and considering local conditions) is recognizable on the ground. I furthermore assess how one of the project's core principles that was quoted in chapter 5.1.3. materializes, namely ensuring active participation and fair and equitable access to project benefits.

5.2.1. Fostering local agency

Overall satisfaction with the project among participants appeared very high. Answers about the university's engagement in the community showed unequivocal positive feedback from all 27 participants. As reasons for their positive attitude, seven respondents mentioned aspects related to agency (five mentioned building up knowledge and two mentioned supporting self-sufficiency) while two mentioned immediate material resources (supplies). As a response to their expectations for the project, thirteen out of the 27 respondents cited aspects related to personal skill development and learning. Eleven mentioned the provision of assets, mostly as facilitators for own activity (e.g. seeds and fertilizer) rather than in the form of pre-processed goods. This expresses a clear will to be supported in doing own work, rather than relying on someone else. The perceived emphasis on agency was strengthened by numerous other observations and statements[14].

While it was not possible to assess whether the project's approach indeed strengthened participants' agency or whether this was already the case before the project started, these examples indicate that

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[14] Inter alia, KI2 expressed the ambition that the community should resolve challenges themselves instead of relying on the project to do so; the PM acknowledged the value of the community field in helping them learn to plan ahead; project participants have built up a savings fund in order to buy fertilizer themselves when needed (PM, personal communication, March 15).

participants see themselves as agents of their own development and in this way reflect the approach's underlying idea.

5.2.2. Considering local conditions

The second motivation for the hands-off approach, taking into account local conditions, was clearly reflected in responses to survey questions. 23 out of 27 participants expressed that their crop suggestions were taken into consideration in the project; 25 expressed they felt the project had considered their comfort with changing farming practices; and 26 expressed it had considered how they perceive academic knowledge. My impression was that both PM and in particular CC are well aware of the local conditions, certainly fostered by their frequent personal interchange with community members. In this way, the approach appears to have its desired outcome.

5.2.3. Ensuring active participation and fair and equitable access to project benefits

Exploring underlying values among project participants

In order to have a fundament on which to meaningfully interpret my observations related to this core principle of the project, I aimed to get an understanding of participants' underlying values with regards to equality and autonomy. I explored these within my focus group meeting and through questions in my community survey.

In my focus group meeting, participants showed a very deliberate, autonomous and sharing approach, forming similarly sized subgroups that left no participant out. In the discussions, they treated each other's opinions respectfully and let their peers finish their statements. There did not appear to be domination of singular voices over others. Each group independently chose one note-taker and presenter, asked each other questions in their presentations and attempted to answer the questions of their peers if possible. Figure 6 displays a visual impression of the focus group meeting.

Figure 6. Impressions from the focus group meeting. The left picture shows deliberation within two subgroups. The right picture shows a project participant presenting to the group. (Own photograph)

In my survey, respondents expressed a trend in preference towards equality and inclusiveness with regards to decisions. Asked whether it was acceptable for them if some people in the community have more income than others, six participants found differentiated income levels acceptable, while 21 respondents expressed a preference for equal earnings. Asked whether they like to take their own decisions or prefer someone else taking them on their behalf, 16 responded "own decisions", nine responded "group decisions" (although not directly implied by the question) and two mentioned "someone else".

Exploring equality and inclusiveness within the project

These preferences stand in some contrast to answers about the actual situation on the ground. Asked whether they feel that people in the community benefit equally from the project or if some benefit more than others, ten respondents mentioned that some benefit more. Out of these, four had previously indicated that they found it acceptable if some have more income than others.

Asked which people benefit more, four respondents mentioned reasons related to a position or status within the project and displayed discomfort with this situation (see box below). Furthermore, twelve respondents expressed that they do not perceive to have an influence on decisions taken within the project. Out of these, none had previously indicated a preference for someone else taking decisions for them.

Question 24: Who/which group of people benefits more than others from this project, and in what ways?

- "Old" group members: 3
- People in the Exec committee: 1

Question 25: How do you feel about this?

- Feel bad about it and a little left out: 1
- Feel uncomfortable: 1
- Feel that these people are better or special: 1
- It made me feel small: 1

Exploring means of participation in the project

While survey answers represent the feelings of participants in the project, I also decided to examine how community members can become part of the project in the first place. As expressed by the PM, scaling up the project is planned to happen through the personal networks of those already engaged.

In the last scale-up in 2015, the project ended up including all community members that had actively expressed an interest in joining (personal communication, March 15). Asked about how the group would take care to integrate introverted people that might have reservations about approaching the project, key informant 1 (KI1) reported that they would actively look out for and actively approach new potential participants. As main criterion they would watch out for, she mentioned whether community members have already initiated farming activities by themselves in their own garden to "show potential", meaning a self-driven motivation for farming. If someone does not own a garden, he or she could use a piece of the communal land to cultivate one.

In this way, potential participation in the project appears to be fostered by having a connection to existing participants and being able to show potential for farming. At the same time, survey results indicate at least partial feelings of exclusion from project benefits and decision-making. I explore this further in the discussion section.

6. Discussion

I divided the discussion into two areas of attention. Chapter 6.1. directly builds up on the last part of my results section, which showed a divergence between the ambition of the project to ensure active participation and fair and equitable access to project benefits and the actual situation on the ground. I discuss an aspect that potentially contributes to this divergence: the role of key informants and social networks within the project. Chapter 6.2. connects my findings with the underlying debate around resilience with which this thesis began. Here, I address RQ3 and assess how the case of the URP can inform the debate around usage of the concept in climate change adaptation (chapter 6.2.1.) and reciprocally, how projects like the URP can benefit from integrating aspects of the conceptual debate into their setup (chapter 6.2.2.).

6.1. The role of key informants and social networks within the project

As the last results have shown, some project members expressed dissatisfaction with the distribution of benefits within the project and expressed that they felt excluded from decision making. Some answers regarding who benefits more pointed to a certain status or position ("old group members" or "people in the executive committee"). Further, expansion of the project to new members often works through existing personal networks, partially based on a displayed farming ability.

Within the URP, certain participants have indeed evolved into focal and coordinating roles. When the university professor initially engaged in the project personally withdrew from its operational

management, he appointed the project participant who initiated it as a chairperson to coordinate the project group. Additionally, the first cooperative that has formed out of the original participant group has elected an "executive committee", consisting of six members including one chairperson (KI2, personal communication, March 22). While an appointment is not community-driven, the idea of chairpersons as such and the election of an executive committee out of a self-formed cooperative go in line with the project's underlying intention for the community to manage itself. In their functions, both chairpersons also serve as closest points of contact to the URP coordinators, facilitate outreach from the project to the community and are in this way also central in expanding the project to new members.

On this note, and with regards to the project's explicit ambition to care for an equitable sharing of benefits and especially benefit the most vulnerable members of the community, it is necessary to discuss the risks of working through local key informants and their existing social networks.

At the outset of this discussion, it is noteworthy that distribution of benefits or inclusion in decision-making did not appear to be a question of gender. Especially in the often patriarchal rural South Africa, one might have expected male domination. However, a few indicators contradict this: the coordinator for the whole project group is female; seven out of 15 married women described themselves as "head of their household"; and women appeared very vocal in the group workshop. The following discussion for this reason does not entail a specific gender component.

6.1.1. Risks of working through key informants and social networks

Côte and Nightingale (2011) have already warned us that autonomy over project design on the local level is not a panacea and might likewise turn out problematic:

> Examples are countless among work on the impacts of participatory and decentralized natural management initiatives, which shows that far from giving greater rights and decision-making power to disadvantaged groups, these initiatives often create opportunities for further exclusion at different scales, the effects of which range from local elite capture to expanded territorial control by the state. (p. 480)

While the situation within the project might also bring up ideas along these lines of local elite capture, potentially by those holding roles as chairpersons, I did not get the impression this was happening within the project. The roles as chairpersons officially do not bring them any benefits but

bear a number of additional tasks, responsibilities and partially burdens, such as being made responsible for challenges in the project by other project members, as expressed by KI2. Generally, I did not observe widespread negative feelings but rather appreciation from other project members to their work.

Still, the quoted survey answers indicate a perceived power imbalance among some project members, which should be treated as a warning signal by the project. If the approach is to assign responsibility over project development to the local context - which has proven beneficial in many ways, as expressed previously -, the development of local power structures within the project needs to be closely monitored.

This is of even higher significance with regards to the goal to particularly support the most vulnerable community members. There appears to be a risk that members who are not connected to existing participants, in particular the chairpersons, and who do not have the resources or strength to display their farming potential, remain left out of the project. This is a particular risk for the marginalized and poorest community members, which are often even more affected by the impacts of climate change.

Aiming to explore this further, I held interviews with a former member of the project as well as a community member that had never taken part in the project. Neither of both expressed feelings of exclusion, and the latter expressed that she still benefitted from the project in terms of knowledge transfer and potential seed remainders. However, the meaningfulness of this finding is limited by the fact that both belong to the personal network of one of the chair people and were for this reason in some way connected to the project. Unfortunately, I did not have the chance to speak to a truly marginalized member of the community.

6.1.2. Mitigating the risk of working through key informants and social networks

Drawing a rash conclusion, one could develop the thought that the setup of the project mirrors the understanding on project level that existing power structures are not necessarily something to watch critically, but something to work through, as described in chapter 5.1.3. However, this statement was specifically given with regards to the role of traditional authorities, who, according to the PM, so far have played a catalyzing function in the projects' development, and can thus not be taken as representative for the view on power in any form.

When talking about personal networks within the project, the CC expressed awareness of the current group dynamics. In order to mitigate the influence of personal relationships, he explained that, amongst others, the Executive committee is not envisaged to coordinate the whole project. He

further expressed that he deliberately works through both chairpersons indivudally, as their different personal relationships might help to approach a higher range of people as potential new members.

As described earlier, the approach on project level is further coined by an element of inclusiveness, aiming at not excluding any interested community members even if maximum participation levels have already been reached. As the PM described, this should also prevent any situation of competition amongst community members for spots in the project - a situation marginalized members of the community appear certain to lose. Further, the PM explained the plan to conduct a vulnerability study within the community. Such a measure seems crucial for identifying those community members most in need of support to then ensure their participation in the project.

On a general level, the civil society representative brought forward the necessity of having a constant reflection and learning system in a project like the URP. The discussion just held might form part of this. One central question to be asked might be up to what point a "hands-off" approach, as disseminates throughout the project from international to community level, creates benefits towards the overall project goals, and at what point it might be advisable to take a stronger steering position. This should entail consideration of one of the core questions for every resilience approach formulated by Côte & Nightingale (2011) as to "whose resilience we are concerned with, and to what end" (p. 482). Furthermore, constantly watching out to also gain insights from people not in focal roles appears meaningful. As the civil society representative expressed, focusing community outreach too much on singular people bears a risk of only getting a filtered perspective.

6.1.3. Potential benefits of working through key informants and social networks

Applying a different perspective, it should also not be left unmentioned that the existence of key informants and social networks can certainly bear benefits for a project's progress, particularly in an initial phase. A few questions for reflection might demonstrate this:

- How would the lack of focal points that are well-connected within the community impact project coordinators' knowledge about local dynamics?
- How would knowledge-sharing and collaboration on community fields work amongst people that have not known each other before and have not had the chance to build up trust towards each other?
- How would a constellation in which people have not known each other before affect the organic build-up of cooperatives that is one of the main approaches of the project?

In my eyes, questions of this kind are necessary to consider the role of key informants and social networks in a project holistically. It might be worthwhile to investigate the impact of key informants and social networks especially in a project's initial phase, and whether this in the long run indirectly also benefits those initially not part of the project or not. One aspect the CC mentioned in this regard was the project's idea to build up a "grade system" (personal communication, March 22). While early participants benefit from the project at a very early stage, these are supposed to share their experience with new joiners over time, who then again transfer it to following participants. However, investigating this further clearly exceeds the scope of this research.

6.1.4. Summary

The past discussion sheds light again onto the tight connection between resilience, power relations, social networks and vulnerability on the local level. Discussions around who benefits from external funds might, very reasonably, often revolve around communities' direct access to funds and for these not to get "stuck" on e.g. national government level (civil society representative, personal communication, April 11) or on the level of a traditional authority, as was my initial thought in this case setting. My study suggests that it is equally important to examine distribution and participation processes within the local target community so that, within a group where all members can be described as vulnerable to some extent, not particularly those who are even more vulnerable remain left out of those measures intended to help them.

6.2. Connecting my findings with the debate around resilience

At this point, it appears meaningful to connect my findings with the debate around resilience that I presented at the outset of this thesis.

6.2.1. Reflection on the debate around resilience

RQ3: How can the case of the URP inform the debate around application of the resilience concept in climate change adaptation?

In addressing my third research question, I in the following present and reflect on a number of findings from my case that relate to the criticism raised towards application of the resilience concept.

Finding 1: Agency plays one of the key roles for building resilience within this climate adaptation project and should continue doing so. In contrast to the critique that resilience programs tend to

neglect agency, it is one of the core aspects of the resilience philosophy underlying the URP. While it is certainly too early to make a grounded statement in this regard, I gained the impression that this commitment to agency indeed provided the participants with greater self-esteem and motivation, and this appears to be beneficial for generating a self-sustaining environment which still holds once funding stops. Under all these caveats, the call that agency should play a central role in resilience programs appears very valid.

Finding 2: Resilience works with market mechanisms, and this appears to support poverty alleviation. This case study supports Brown's (2011) assessment that resilience often works with market instruments. In the case of the URP, this particularly unfolds in the goal to establish connections to the local food markets. However, in contrast to the market approaches Brown refers to, I gained the impression that the market idea pursued within the URP, which aims at strengthening smallholders' bargaining position towards corporations, could benefit participants' economic situation and thus contribute to poverty alleviation.[15] For this reason, differentiation in the debate around resilience is required with regards to market approaches. The central questions need to be who benefits economically from what and to whose detriment.

This approach to market instruments in particular addresses the concern raised by Béné et al. (2012) that resilience might overrule poverty alleviation, as it explicitly targets battling existing and especially future poverty. When economic wellbeing is explicitly put forward within resilience programs in this way, resilience building appears combinable with and not detrimental to the agenda of poverty alleviation.

Finding 3: Resilience needs to embrace ideas of vulnerability and stay vigilant towards locally emerging power structures and networks. Béné et al. (2012) have described that the unreflecting application of resilience ideas brings along the danger of ignoring the concept of vulnerability, which is conceptually closer to factoring in issues of power and agency. This case has again demonstrated the crucial role of vulnerability, as it acts as a constant reminder to keep the poorest and powerless within focus. As Béné et al. describe, "a community as a whole (or most of its members) may become more resilient as a result of some project interventions but it is likely that there will still be some

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[15] The CC in this regard mentioned the example of a cooperative of dairy farmers, which was successively built up by farmers themselves and is now owned by them. At some point, the number of farmers that had grouped together was large enough to negotiate with the supermarket chains they supply to be paid not only for the dairy products themselves, but also for delivering them to the markets - something the supermarkets could beforehand deny the single farmers.

winners and some losers" (p. 14). Bringing vulnerability ideas constantly to the forefront not only in project design, but also in delivery, could help avoiding a divergence of this kind.

Finding 4: The academic discussion around the concept of resilience hardly emits into the practical sphere. While this thesis displays an attempt to inform the theoretical debate around resilience by findings from practice, it has also revealed that an information flow in the opposite direction hardly takes place. The conceptual discussion around resilience appears to happen largely within the academic space and leave the practitioners' sphere widely unaffected. This was expressed by the AF representative, the SANBI representative and the PM alike[16].

One of the reasons for this might be that often, resilience is not seen as a self-standing concept but as a feature embedded in development (as expressed from the AF and SANBI representatives). It is further conceptually equated to adaptation response (SANBI representative) or effective adaptation (civil society representative). The close conceptual distinction between resilience, adaptation and development dissolves within the practical sphere, as they have a number of commonalities that are impossible to distinguish in application. However, the civil society representative expressed the feeling that a stronger conceptual awareness of certain terminologies could help to avoid misunderstandings and misconceptions within practice.

The reduced academic engagement with resilience further lead a university professor to the conclusion that the project was lacking a clear resilience framework (personal communication, March 18) and that the results based management framework only accounts for outcomes, not impacts (personal communication, March 22). It is indeed noticeable that while there are vast textual and oral references to agency, vulnerability, the local context and other aspects described in this research on all levels of governance, these are insufficiently mirrored in the respective results measurement frameworks[17]. It appears that the vast acknowledgement of the importance of the factors reviewed

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[16] Explicit statements in this regard have been made as follows:
- AF representative: "We tend to stay away from attaching ourselves very much to very specific definitions" (personal communication, April 6);
- SANBI representative: "We haven't really played with resilience as an academic concept" (personal communication, March 17);
- PM: "Since I joined, we actually haven't had those kinds of discussion" (personal communication, March 15).

[17] The SANBI representative has pointed out that the project's results framework has been derived on the basis of the AF's underlying evaluation criteria, building on an explicit set of practicable and measurable indicators (personal communication, May 12). In this context, she has expressed awareness of the limited capability of results frameworks of this kind to measure impacts and indicated that the project has hence set out to supplement these by further learning and reflection tools.

in this study happens in a rather implicit way and is not explicitly framed as core to resilience. A way forward in this regard is discussed in the next chapter.

6.2.2. Integrating the resilience debate into the practical sphere

As described earlier, the URP faces a certain risk that the marginalized and poorest members of the community, who for these reasons often also belong to the most vulnerable, remain left out of the project. At the same time, its core resilience principles like its commitment to aspects of vulnerability and agency are not exhaustively displayed in its results framework but are taken into account implicitly. Having a dedicated underlying resilience framework that grounds on the debate around the concept might allow making some of these resilience principles explicit, help the project keep track of these and thus inhibit the named risk becoming a reality.

An underlying resilience framework would not only be beneficial for this project in particular, but also for others. In this case study, the consideration of the principles in question was positively influenced by various project and country specific factors, such as the unique way the project came into being (being requested by the community itself) and the vast experience and professionalism of the NIE in place. These factors cannot be regarded as given, particularly in a developing country context.

While there is a plethora of potential resilience indicator sets, one recent example protrudes in this regard: the so-called Resilience, Adaptation and Transformation Assessment (RATA) framework. The RATA framework has been developed by the Scientific and Technical Advisory Panel (STAP) of the Global Environment Facility (GEF) and the Rio conventions (UNFCCC, UNCCD, UNCBD) in order to "align approaches and monitoring towards common objectives" (O'Connell et al., 2015, p. 3) and displays "an iterative participatory approach to the assessment of resilience, identifying socio-ecological variables and their interactions across scales" (p. 2). While this at first glance sounds like any other resilience assessment, the RATA framework could display a step forward for different reasons:

- It is based on a review of the academic debate around resilience, thus itself starting with a conceptual discussion regarding the meaning of resilience and what should be achieved by it.
- It explicitly negates that resilience is a normative concept and demands a contextualization, specifically asking questions of "resilience of what, to what and according to whom" (O'Connell et al., 2015, p. 5).

- For this reason, it denies the applicability of ready-made resilience indicators; existing sets of indicators have been reviewed and found insufficient to cover the contextual dimensions of resilience projects.
- Instead, it frames a procedure, a set of questions that in a structured manner helps practitioners assess and define what it is they want to achieve in a resilience project and which social implications this might have.

The RATA framework offers an attempt to operationalize resilience in a manner that moves away from simple universal indicator sets towards a more thorough and contextualized engagement with resilience. It raises attention towards the problematic aspects of the concept and forces to make the risks connected to these explicit in application. While it is still in draft status and needs to be further tested and improved, my research underlines the use case for a framework of this kind.

7. Conclusion and Outlook

The conceptual debate around application of the resilience concept appears fierce. On the one hand, resilience theorists, particularly those originating in the field of ecology, lobby for its usability and praise it for creating a bridge between the social and natural sciences for addressing sustainability questions. On the other hand, critics of the concept go as far as rejecting its applicability within the social sciences in its entirety (Olsson et al., 2015). On this backdrop, I have provided an attempt to ground this debate in practice by providing an empirical account of how the concept gets operationalized in a climate adaptation project and which implications this has on the ground. My research suggests that, as often, the truth appears to lie in the middle: Neither does the application of resilience lead to a total neglect of fundamental social factors; but nor can this be attributed to its conceptual strength.

Maybe the most important finding of this research is that the debate around resilience leaves the practical sphere widely unaffected, as practitioners hardly differentiate between concepts that share common ground as much as resilience, vulnerability and development do. A closer exchange between practice and academia appears like the essential way forward. The conceptual debate needs to inform practice in order to prevent the concept of resilience from causing unwanted consequences on the ground; and academia needs to understand the context and forms of the concept in its applied form better, so that sharpening the concept does not remain without impact in practice.

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Appendix: Accumulated survey results

1. Gender	- Female: 23 (85.2%) - Male: 4 (14.8%)
2. Age	Age groups: - 30-39: 1 (3.7%) - 40-49: 3 (11.1%) - 50-59: 13 (48.1%) - 60-69: 8 (29.6%) - >69: 2 (7.4%) Average age: 56.7
3. Marital status	- Married: 16 (59.3%) - Single: 9 (33.3%) - Widowed: 2 (7.4%)
4. How many people live in your household?	Grouped: - 3-5: 8 (29.6%) - 6-10: 14 (51.9%) - >10: 5 (18.5%) Average ppl per household: 7.4
5. Are you the head of your household?	Female: - Yes: 13 (56.5%) - No: 10 (43.5%) Male: - Yes: 3 (75%) - No: 1 (25%)
6. What are the sources of your household's income?	- Pension: 12 - Selling produce: 12 - Other government grant: 6 - Working: 3 - Partner working: 2 - Someone else in the household working: 1 - Own business: 1 *(Multiple responses possible)*
7. How much do you usually earn from selling your produce in one year?	- 0-1,000: 5 (18.5%) - 1,000-3,000: 10 (37%) - 3,000-5,000: 4 (14.8%) - 5,000-10,000: 4 (14.8%) - More than 10,000: 1 (3.7%) - New in the project, can't tell: 3 (11.1%)

8. What crops do you usually grow?	- Maize: 25 - (Dry) beans: 23 - Sweet potatoes: 14 - Taro: 10 - Spinach: 10 - Potatoes: 9 - Cabbage: 8 - Green pepper: 6 - Onions: 4 - Carrots: 2 - Sugar beans: 1 - Nuts: 1 - Pumpkin: 1 - Oranges: 1 - Butternut: 1 - Beetroot: 1 - Chillies: 1 *(Multiple responses possible)*
9. For how long have you been on the land that you're working on?	Grouped: - 0-5 years: 7 (25.9%) - 6-10 years: 6 (22.2%) - 11-20 years: 5 (18.5%) - 21-30 years: 5 (18.5%) - >30 years: 4 (14.8%) Average years on land: 18.15
10. Have you noticed any changes in weather over the last years?	- Yes: 25 (92.6%) - No: 2 (7.4%)
10b. Weather changes that the respondents mentioned	- Drought: 13 - High rainfall: 9 - High temperatures: 5 - Inconsistent rainfall: 1 - Strong wind: 1 - High sunlight: 1 - Frost: 1 *(Multiple responses possible)*
11. What do you think could be the reasons for these changes?	Directly or indirectly attributed to climate change: 19 - Climatic change: 8 - Atmospheric disturbance: 3 - Global warming: 2 - Gasses from industrial firms: 2 - Smoke from factories: 2 - Changes in the world: 1 - World's activities: 1

	Attributed to other reasons: 6 - God: 2 - Burning sugarcane: 1 - Burning fires: 1 - Boys smoking: 1 - Loss of traditions: 1 Don't know: 9 *(Multiple responses possible; question only asked if respondent had answered in Q10 that he/she had noticed any changes in weather)*
12. What sort of <u>challenges</u> do these <u>changes</u> create for you?	Rain-related: - Crops dry out/don't germinate due to lack of rain: 4 - Damage to crops due to runoff: 3 - Other damage to crops due to heavy rain: 2 - Maize falls down from heavy rain: 1 - Beans are being flooded from heavy rain: 1 Heat-related: - Crops suffer/don't produce as much yield due to heat: 4 Other challenges: - Crops don't produce as much yield (no direct reason mentioned): 6 - Have to irrigate more often: 2 - Delayed planting / shift in seasons: 2 - Pest development: 2 - Having to buy new seeds for next season (instead of being able to retain): 2 - Crops rot from frost: 1 - Potatoes rot underground: 1 - Loss of sales due to poor quality of crops: 1 - Loss of sales due to poor taste (maize): 1 - Having to buy food at the market: 1 No challenges (soil type is resilient): 1

	(Multiple responses possible; question only asked if respondent had answered in Q10 that he/she had noticed any changes in weather
13. How are you preparing for these <u>challenges</u>?	- No way of preparing: 10 - Saving seeds: 6 - Saving money to buy new seeds/fertilizer: 5 - Higher irrigation: 2 - Cultural practices: 1 - Mulching: 1 - Using more synthetic fertilizer: 1 - Creating own well for underground water: 1 - Using wetland water: 1 *(Multiple responses possible; question only asked if respondent had answered in Q10 that he/she had noticed any changes in weather*
14. Are you aware of the current food security project that is being done with the university?	- Yes: 27 (100%)
14b. How long have you been part of this project?	- 2012: 11 (40.7%) - 2014: 3 (11.1%) - 2015: 9 (33.3%) - 2016: 4 (14.8%)
15. What do you expect from this project?	Assets: - Quality seeds: 6 - Fertilizer: 3 - Water resources: 3 - More cultivars: 1 - Chemicals against. pests: 1 - Fences: 1 - More land: 1 - Tractors: 1 - Cars: 1 - General funding: 1 Capacity: - Improve farming: 7 - Knowledge: 4 - Food for subsistence: 1 - Help with fencing: 1 - Help with irrigation: 1 - Help with seeds: 1 - General help: 1 - Growth and development: 1

	Market-related: - Higher income: 3 - Grow skills to run markets: 2 - Sell to big companies: 2 *(Multiple responses possible)*
16. Do you feel that your suggestions of crop choices are incorporated in the project?	- Yes: 23 (85.2%) - No: 4 (14.8%)
17. How do you feel about changing your way of farming?	- Comfortable: 17 (63%) - Uncomfortable: 10 (37%)
18. Do you think this project has considered sufficiently how comfortable you are with this?	- Yes: 25 (92.6%) - No: 2 (7.4%)
19. What do you think about the university's engagement in this community?	Positive/helpful: 27 (100%) - Builds up knowledge: 5 - Brings supplies: 2 - Supports to be self-sufficient: 2 - Civilizes/develops the community: 2 - Helps progress: 2 - Community benefits: 2 - Motivating: 1 - Working with skilled people: 1 - Helps preparing for the future: 1 - Might inspire young people to go to university: 1 *(Not all respondents gave additional reasons for their attitude)*
20. Do you think that people from the university can help you with their knowledge?	- Yes: 27 (100%)
21. Do you think this project has considered sufficiently what you think about university knowledge?	- Yes: 26 (96.3%) - No: 1 (3.7%)
22. Is it ok for you that some people in this community have more income than others, or	- Ok if some have more than others: 6 (22.2%) - Would prefer if everyone earns the same: 21 (77.8%)

would you prefer it if everyone earns the same?	

23. Do you have the feeling that everyone in this community benefits in the same way from this project, or do some benefit more than others?	- The community benefits in the same way: 17 (63%)
	   o Because supply is monitored / measures are taken to ensure equal supply: 2
	   o Because work is done in a group so that everyone can benefit: 1
	
	- Some benefit more than others: 10 (37%)
	
	(Not all respondents gave additional reasons for their attitude)

24. Who/which group of people benefits more than others from this project, and in what ways?	- People who plant certain crop types: 4
	   o Maize: 4
	   o Potatoes: 3
	   o Taro: 1
	- "Old" group members (get seeds first before the new members, do not cooperate with new members): 3
	- People with more land: 1
	- People in the Exec committee (get more seeds & implements): 1
	- People that work harder: 1
	- People that don't work in the field but still expect produce: 1
	- Some are looking to benefit more individually then to benefit the whole group: 1
	
	(Multiple responses possible; question only asked if respondent had answered in Q23 that he/she thinks that some benefit more than others)

25. How do you feel about this?	- Those who named people who plant certain crop types:
	   o Happy: 3
	   o Feels need to change crop types: 2
	
	- Those who named the "old" group members:
	   o Feel bad about it and a little left out: 1
	   o Feel uncomfortable: 1
	   o Feel that these people are better or special: 1
	
	- Those who named people with more land:
	   o Not bad because that's all I have: 1
	
	- Those who named the Exec committee:
	   o Made me feel small: 1
	
	- Those who named people who work harder:
	   o Makes me feel like we can all still learn more about crop protection (bad when we get unequal returns for the same inputs) 1
	
	- Those who named people that do not work in the field:
	   o Feel uncomfortable: 1
	
	- Those who named people that are looking to benefit more individually:

	○ Happy, because I learnt a lot: 1
	(Multiple responses possible; question only asked if respondent had answered in Q23 that he/she thinks that some benefit more than others)
26. Do you like to take your own decisions or do you prefer it if someone else takes decisions for you?	- Own decisions: 16 (59.3%) - Group decisions: 9 (33.3%) - Someone else: 2 (7.4%)
26b. *Additional infos mentioned in connection to type of decision-making*	Own decisions: - Taking own decisions in a way that benefits everyone: 1 - Taking own decisions but also listening to others' views: 1 Group decisions: - Group decisions are more powerful than individual decisions: 1 - Decisions in a group as work is also done in a group: 1 - Taking group decisions so that everyone benefits: 1 - Preferring group decisions as people could have different views: 1 - Preferring group decisions to having someone else decide: 1 Someone else: - Easier if someone more knowledgeable helps to take decisions: 1
27. Do you think you have an influence on decisions taken in this project?	- Yes: 15 (55.6%) - No: 12 (44.4%)
28. In what ways do you think you can influence decisions taken in this project?	- By raising effective points/opinions: 12 - Within group decisions: 1 - By sharing knowledge: 1 - Project needs to take people's opinions into consideration like it was done in 2015: 1 *(Multiple responses possible; question only asked if respondent had answered in Q27 that he/she thinks he/she can have an influence on decisions taken in the project)*
29. Is there anything else you would like to tell us about the project?	Happy about the way things are going: 9 Assets: - Require water resources: 5 - Require fertilizer: 4 - Require fencing: 2 - Require seeds: 2

	- Require quality plants: 1 - Require more different cultivars: 1 - Require greater space: 1 - Require seed schedule: 1 - Require working material: 1 - Require tractors: 1 Communication: - Better communication between community & university: 1 - More frequent communication within the community/group: 1 Group differences: - Separate grouping system (as "old" group does not cooperate with "new" group): 1 - "Old" members benefit more from seed supplies: 1 - "Old" group members work less on the fields compared to "new" members: 1 - "Old" members do not let "new" members on some of the fields: 1 - Some meetings only taken by "old" group without telling "new" group members: 1 *(Multiple responses possible)*