

Human Development, the Capability Approach and
the Mediating of Sustainable Rural Livelihoods:
A case study of women's empowerment through expansive learning in the
Mzimvubu Catchment of the Eastern Cape province, South Africa

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ABSTRACT

This study makes a contribution to the field of sustainable agricultural development and women empowerment in rural South Africa by examining the transformations derived from an expansive learning process with a women farmers group in terms of their food production capability expansion and empowerment as well as the well-being of their local catchment or landscape where their activity was situated.

The study took place in the Lutengele villages along the upper reaches of the lower Mzimvubu Catchment near Port St Johns in the Eastern Cape province of South Africa. Women in southern Africa are significant contributors to household livelihoods through their household food production practices and at the same time they are also one of the primary natural resource users in rural landscapes. In this case study, historical and contemporary ethnographic and situational data revealed disjuncture between existing practice and the fulfilment of women aspirations with regard to food security and social and ecological well-being at large.

As a result, central to this study were the concepts of aspirations and capabilities and the role that these played in transformative learning processes via formative intervention research (after Engeström's concept of expansive learning). Expansive learning emerges from Vygotsky's early work on mediation of learning through language and culture, which gave rise to Cultural Historical Activity Theory (CHAT). Whereas the Capability Approach (CA) recognises that development interventions or initiatives should focus on "expanding the freedom that deprive people from enjoying their *valued beings and doings*" (Sen, 1999, p. 3), in other words, what people value or have reason to value. The Capability Approach coupled with CHAT deepens the contextual understanding of the agricultural activity system in light of the engendered power dynamics associated with women having access to productive resources, their culturally expected roles and responsibilities in the institution of their households, their families and the community at large, and most importantly, aspects of gerontocracy defined by their age and status in society. In addition, drawing on the Capability Approach as a lens to view agricultural development, social transformation and empowerment, provided the tools to conceptualise participants' aspirations, their true value and the capabilities necessary for such aspirations to be realised in a context filled with socio-cultural and political power relations and dynamics faced especially by women.

The first phase of the study set out to map the context in which the participants' small-scale food production activity was situated, their aspirations relevant to sustainable agricultural livelihoods, food security, well-being and lastly, the main factors or contradictions inhibiting participants from attaining the aspired food production goals.

During the initial phase of the expansive learning cycle I was able to address the first research question: *What tensions and contradictions in aspiration-practice relationships shape household food security in the context of catchment management of the women farmers' group or river forum in the Lutengele area?* Twelve contradictions were identified from the historical and contemporary socio-cultural analysis of the home-based food production practices and agricultural activity in relation to the research participants' envisaged aspirations, which under further scrutiny were thereafter considered by the participants as critical capabilities to pursue during the collective and transformative learning process in the second phase of the study.

In the second phase of the study, a series of second stimuli were introduced in the form of conceptual and material tools and tasks with the aim to move participants along the expansive learning process. This led to the unfolding of the collectively defined Capability Learning Pathways for sustainable food production or expansion of their agricultural capability in the context of sustainability of the local micro-catchment or landscape. Through the various Change Laboratory workshops and supporting mini-cycles in the last stages of the formative interventionist research, participants' learning and development was supported in a way that not only brought individuals together to co-design relevant solutions, strategies and working groups or committees, but also catalysed and amplified transformative agency and the expansion of food production capability, sustainable land use practices and ultimately empowerment. This answered the second and most important research question: *Can, and if so, how can expansive social learning processes shape conversion factors for turning available resources into functionings that enhance household food security capabilities and ecological well-being?*

The methodology of expansive learning and formative interventionist research design intervention, with supporting mediating tools, has proven a positive intervention in the attainment of capabilities (or functionings) in relation to the participant's aspired livelihoods and consequently improving their well-being as well as their ability to navigate through the various gendered power dynamics, especially for the young women participating in this study. The study proposes expansive learning as a suitable critical and transformative learning theory and

methodology for the mediation of collective deliberations and the pursuit of capability development as charted by the learners' collective and individual aspirations. This is a learning process that not only pursues the learners' attainment of material and cognitive changes but also opens up new opportunities and most importantly, the freedom to exercise their agency no matter the circumstances they find themselves in – in other words, the freedom to aspire and to be, do and become what one values as instrumentally and intrinsically critical to live a life that they have reason to value.

In sum, the unfolding of the expansive learning process happened at three levels: at the value clarification level in terms of human and non-human relationships and social relationality, the institutional level and the practices level.

The study recommends further research on the suitability of expansive learning and Change Laboratories as a Capability Expansion Methodology involving human development and Capability Approach practitioners, particularly those with an interest in informal learning and community-based empowering initiatives. Additionally, further studies are also suggested for examining formative interventionist research as a participatory action research approach for capability development work in education and learning research and in different study fields and contexts.

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ACRONYMS AND ABBREVIATIONS

CA	Capability Approach
CHAT	Cultural Historical Activity Theory
CL	Change Laboratory
CMA	Catchment Management Agency
CMF	Catchment Management Forum
CRADLE	Centre for Research on Activity, Development and Learning
DEAT	Department of Environmental Affairs and Tourism
DRDLR	Department of Rural Development and Land Reform
DWA	Department of Water Affairs
DWAF	Department of Water Affairs and Forestry
DWAS	Department of Water and Sanitation
DWR	Developmental Work Research
DWS	Department of Water and Sanitation
ELRC	Education, Learning and Research Centre
ERS-CSA	Environmental Rural Solutions-Conservation South Africa
ESD	Education for Sustainable Development
FAO	Food and Agricultural Organisation
FD	Follow-up discussions
GAP	Global Action Programme
ICM	Integrated Catchment Management
IWRM	Integrated Water Resource Management
LBPL	Lower and Upper Bound Poverty Line
LEISA	Low-External Input and Sustainable Agriculture
MDGs	Millennium Development Goals
MOAIWD	Ministry of Agriculture, Irrigation and Water Development
MUS	Multiple use system
NCCRWP	National Climate Change Response White Paper
NFEPA	National Freshwater Ecosystem Priority Areas
NGO	Non-Governmental Organisation
NRM	Natural Resource Management
PTO	Permission to Occupy
RSA	Republic of South Africa
RWH	Rain Water Harvesting
SA	South Africa
SADC REEP	Southern Africa Development Community Regional Environmental Education Programme
SDGs	Sustainable Development Goals
StatsSA	Statistics South Africa
UCG	Umhlaba Consulting Group
UN	United Nations
UNDP	United Nations Development Programme
UNESCO	United Nations Educational, Scientific and Cultural Organisation

VLAP	Village Level Action Plan
WCFFO	Wild Coast Farm and Forest Organisation
WESSA	Wildlife and Environmental Society of South Africa
WH&C	Water Harvesting and Conservation
WMA	Water Management Areas
WRC	Water Research Commission
WSM	Watershed management
WWF	World Wide Fund
ZPD	Zone of Proximal Development

ISIXHOSA GLOSSARY

<i>Abakwetha</i>	A ceremony when a young man enters manhood and goes to the mountains
<i>Akalawuleki</i>	'A divorcee cannot be told what to do'
<i>Amabhaso</i>	Gift exchange ceremony between families of two people getting married
<i>AmaMpondo</i>	isiXhosa speaking sub-group
<i>Amangeno</i>	Modern party
<i>Amaphakati</i>	Traditional council
<i>Amaqaba</i>	Uneducated people. Usually refers to backward thinking or traditional thinking before colonisation through the church, schools, language etc.
<i>Amasiko</i>	Traditions/culture/ancestors
<i>Amasimi</i>	Fields (plural)
<i>Bhuti</i>	Brother or young man
<i>Bundela</i>	Stokvel/ saving scheme
<i>Domkhulu</i>	Headman or chief's place
<i>Emkakatsitis</i>	Spring in Lutengele villages
<i>Ibhosisi</i>	Karoo bushes
<i>Iceshana</i>	A person who helps in the garden and takes part of the harvest
<i>Idikazi</i>	Not being responsible, used in Mpondo and Zulu for an unmarried woman who is sexually active
<i>Igadhi</i>	Garden use for one crop per year within the boundary of the household
<i>litswele yomlambo</i>	Wild garlic
<i>Ilima</i>	Traditional way of collectively assisting one another to cultivate the land in exchange of traditional beer
<i>Imbizos</i>	Public meetings
<i>Imifino</i>	Wild vegetables
<i>Imindwenweni</i>	Alien trees
<i>Iminquzo</i>	Ceremony for young girl entering womanhood who is ready to be married
<i>Inkosana</i>	Headman
<i>Inkosi</i>	Chief
<i>Inkulu yekhaya</i>	Clan head
<i>Intonjane</i>	Celebration of a young woman's first menstruation
<i>Intsimi</i>	Field

<i>Inyani lyakrakra</i>	'The truth hurts or the truth leaves a bitter taste'
<i>Iqumrhu</i>	Group
<i>Isgqeba</i>	Committee
<i>Isibonda</i>	Sub-headman
<i>Isitiya</i>	Vegetable garden
<i>Itswele lomlambo</i>	Wild garlic
<i>Izisele</i>	Storage place for maize
<i>Khukapi</i>	River that meets Mazibukwana River
<i>Lobola</i>	Marriages formalised through payment. <i>Lobola</i> involves transfer of wealth in the form of cows. Establishes ties of kinship (blood relationship) and obligation between the families
<i>Lutengele</i>	Village in Lutengele
<i>Lwandlane</i>	Village across the river involved in the Majola Wars
<i>Madala</i>	Old man
<i>Magewu</i>	Non-alcoholic drink made from fermented maize
<i>Magogo</i>	Old woman
<i>Majola wars</i>	1990s over stock theft
<i>Makoti</i>	Young married women bearing children
<i>Manyawuza</i>	A clan name of the Mpondo people
<i>Manyekeni</i>	Spring in Lutengele villages
<i>Mbeleko</i>	Ceremony when a child is born to be introduced to the ancestors
<i>Mielie</i>	Maize
<i>Mixhoboza</i>	Wetland
<i>Muthi 'Gomondela'</i>	Love potion
<i>Muthi</i>	Traditional medicine
<i>Nondlu</i>	Head of the hamlet
<i>Ntshayi</i>	Spring in Lutengele villages
<i>Nozinja</i>	Spring in Lutengele villages
<i>Nxongweni</i>	Village in Lutengele AA
<i>Qhubeni</i>	Village in Lutengele AA
<i>Qoboshendlini</i>	Village in Lutengele
<i>Siya thetha thethana</i>	"We negotiate"
<i>Spaza</i>	Local shop
<i>Stokvel</i>	(Afrikaans) Saving scheme

<i>Tyityana</i>	Village in Lutengele
<i>Ubuntu</i>	Spirit of working together
<i>Ubuqholo</i>	Shrub with berries that is poisonous for livestock (<i>Lantana</i>)
<i>Ukuchatha/Chatha</i>	Incentivise
<i>Ukuhlakula</i>	Local planting method used for growing maize
<i>Ukuthwala</i>	Abduction marriage
<i>Ukweluka</i>	A young man goes to <i>Ukweluka</i> and is called a <i>Mkhwetha</i>
<i>Umama</i>	Woman/mother
<i>Umojiso</i>	Part of <i>ukweluka</i> when a goat is slaughtered for <i>umkhwetha</i>
<i>Umqomboti</i>	Traditional home-brew maize-sorghum beer
<i>Umshingelo</i>	A towel / scarf worn around waist
<i>Umzi</i>	Homestead
<i>Umzimvubu</i>	River running through Lutengele villages
<i>Vongxo-vongxo</i>	Borehole in the Lutengele area

CHAPTER ONE: INTRODUCING THE STUDY

1.1 Introduction

Chapter One introduces this thesis, situating the study as one that emerged from a Water Research Commission (WRC) project conducted between 2012 and 2015 with a focus on women and agricultural livelihoods in the Eastern Cape. This study expanded beyond the WRC project in order to facilitate and investigate an expansive learning process in one of the study sites, the Lutengele villages near Port St Johns, with a women's group or network. This chapter briefly outlines the context in which this study took place, as well as the theoretical lenses and methodological implications, employed to understand firstly, human development and the role of capabilities and aspirations in relation to food production, and secondly, the interrelation between capability achievement and expansive learning. This chapter further provides the research questions and goals and finally an overview of the structure of this thesis.

1.2 Introducing the study

This study originated as a result of two separate but interlinked processes. On the one hand, the researcher had extensive experience in supporting food security and rain water harvesting projects in the Lutengele villages where this study took place. These are several villages along the upper reaches of the lower Mzimvubu Catchment near Port St Johns in the Eastern Cape in South Africa. In the Lutengele villages household food gardens play an important part in people's livelihoods contributing substantially to family food needs in the area. The households are primarily headed by women who have the responsibility for most of the food production activities and for managing natural resources. Securing household water often requires considerable human energy, mainly of women or girls. Water is usually obtained from untreated sources which include small dams, springs and the Mzimvubu River located 500m-800m below the settlements (Denison et al, 2015). Consequently food production in this area primarily depends on rain-fed irrigation which makes rain water storage and management a key aspect of sustaining food production throughout the year. Between 2007 and 2009, a total of 34 households in Lutengele were part of the then Department of Water Affairs and Forestry (currently Department of Water and Sanitation) rain water harvesting (RWH) project in response to the Resource-Poor policy (Republic of South Africa [RSA], 2004), which was a combined initiative involving grower training and education, and installation of water storage within homesteads. The participating households were provided with 20 000 litres of water storage and collection infrastructure, which allowed for

all-year-round production for a 100m² garden in winter and 200m² garden in summer (Denison, 2010). Despite the fact that some households successfully maintained a productive garden beyond completion of the Rain Water Harvesting (RWH) project, I noticed that the inhabitants from the Lutengele villages still had to deal with other contextual factors that negatively influenced their livelihoods; I pondered with the idea that future development interventions needed to take these factors into consideration for a greater chance of success. Some of these challenges ranged from lack of sustainable food production capability at household level; scarce or non-existent employment opportunities; migrant workforce, particularly of males, to the industrial sectors; low income earning jobs for migrant workers who sustain large number of dependents; poor infrastructure and basic services such as water, communication, health services, education and other social services, including commercial produce and retail centres; a high average of household inhabitants primarily headed by women; degraded local natural resources; limited institutional support, particularly from government agencies; poor rural development strategies, and disconnected policies and legislation, amongst others. Additionally, prior to the start of this study, the Lutengele residents were reporting a change in climate variability affecting their food production routines and a sense of vulnerability and risk in the area was developing as a result, particularly for women. Climate change risks place concerns on the resilience of woman in rural areas. "Woman will have to labour harder and longer to ensure their families have food, fuel, and water. It is known that in Africa, woman do 90% of the work gathering water and food, and children, in particular girls, often share these responsibilities" (Republic of South Africa [RSA], 2011a). It was within this context that two villages from the Lutengele area, namely Qoboshendlini and Tyityana, constituted an informal women farmers group to better share knowledge and support practices around food production in the area. In this way, these women clearly envisaged food production as one of the primary contributors to their livelihoods – a supplement to government grants and remittances from relatives working outside the villages.

In terms of historical understanding of the object of activity, in 2012, the Umhlaba Consulting Group which I contributed to, was appointed by the Water Research Commission (WRC) to undertake research work into women's empowerment in relation to productive use of land and water resources in three sites in the Eastern Cape. Being part of this research helped me to develop depth in understanding women's food security activities as I interacted with them. The WRC project was set up as a response to address rural and agricultural development challenges in the area.

In South Africa, high levels of poverty and deep inequality remain major challenges and black Africans living in the rural areas of the country are the most severely affected by these. In 2012, it was estimated that 23 million people (45.5%) of the population were living in poverty (based on the Upper Bound Poverty Line), 26% were food insecure, and 13.4% suffered from persistent hunger (Statistics South Africa [StatsSA], 2014). Poverty was closely associated with lack of education and was higher for both women and for youth (ibid.) The Eastern Cape was ranked as the second poorest province in the country, with 69.5% of residents assessed as poor, and an unemployment rate of more than 40%, which is far higher than the national figure of 25%. Social grants provided the main source of income for 37.9% of the households (StatsSA, 2012). Black African women living in rural areas of the Eastern Cape were, and continue to be among the poorest in the country. In rural areas, where opportunities for wage labour employment are low, rain-fed agriculture is the third most important means of livelihood, after remittances and wage labour from low-skilled jobs, though this only contributes some 10% to household survival (Denison et al., 2015). It is well-established that a poorly-functioning rural economy with undeveloped infrastructure, weak market linkages and poor agricultural support services isolates rural households from the mainstream economy and from critically important agricultural value-chains (Denison et al., 2015). Weak and conflicted land institutions add uncertainty and limit transactional opportunities. Despite these systemic challenges, national development, agricultural, and water policies and strategies focus on the need for a stronger, more vibrant smallholder¹ agriculture sector with ambitious goals for intensive crop production activity.

Within this context of poverty and hunger with an important gender dimension, the WRC project in 2012 focused on smallholders in rural Eastern Cape. The WRC research set out to “ensure a comprehensive understanding of the constraints, challenges, opportunities and interventions required for empowerment of women to promote household food security and rural livelihoods through increased water productivity, with the focus on crop cultivation in, amongst others, the Eastern Cape Province”. The specific themes addressed in this research project included water-use; land access and institutions; knowledge and skills gaps; gender roles and responsibilities; the impact of water allocation reform; crop-farming constraints and crop-farming aspirations. The project started in September 2011 with completion in August 2015. There were seven specific

¹ ‘Smallholders’ or small-scale are defined as those farmers owning small plots of land on which they grow subsistence crops and one or two cash crops relying almost exclusively on family labour. The smallholder sector is known for its small farms that are labour-intensive, uses traditional production techniques, and often lack institutional capacity and support (Louw, 2013).

objectives that guided the project which fed into my study (Denison et al., 2015):

- i. To describe and analyse existing water use in crop cultivation (not excluding livestock husbandry) activities undertaken by women at homestead food garden and/or cropland scale in rural villages in at least three selected district municipalities.
- ii. To empirically investigate and specify the existing levels of knowledge, identify knowledge and skills gaps as well as requirements for skills development of women.
- iii. To describe and analyse social relations, demographics, gender dynamics, roles and responsibilities of women in rural villages in at least three selected district municipalities.
- iv. To describe and analyse the influence of (formal and informal) institutional arrangements (regarding access for land and water use), organisational structures and processes (at village level and beyond) on incentives and/or disincentives for use of land and water by women.
- v. To empirically investigate the constraints, needs, aspirations and goals of women for food crop production in the context of local culture, tradition and custom in rural villages in at least three selected district municipalities.
- vi. To evaluate the impact of land and water allocation reform policies, strategies and legislation on women in rural households.
- vii. To review and recommend policies, strategies and interventions for effective people centred water use, food production and associated rural development with particular reference to women.

1.3 Research goals, research objectives and research questions

In 2011 I was approached to collaborate with the team of researchers on the Water Research Commission project outlined in the previous section (Section 1.2) and conduct one of the three case studies based on my experience and linkages with the informal women farmers network already established in the Lutengele villages near Port St Johns in the Eastern Cape. As mentioned above, the focus of the WRC research project was an area that I had experience in, particularly in supporting rural communities in the Port St Johns area to improve their water, land and food security. As a result I developed my research proposal to fulfil the WRC requirements and to extend my professional and personal interest in rural development, women empowerment and transformative learning to develop further. Within the WRC project framing, I developed my study with the aim to investigate the expansion of rural women's sustainable livelihoods capabilities and empowerment via the mediation of expansive learning processes in formative

research interventions. This shaped my PhD study research questions and aims, which are as follows:

1. *What tensions and contradictions in aspiration-practice relationships shape household food security in the context of catchment management of the women farmers group or river forum in the Lutengele area?*

Goal1a: Describe and analyse the household food production activity system of the women farmers group, with particular emphasis on the relationship between women and land, water and power-knowledge relationships.

Goal 1b: Identify aspirations of the women farmers group relevant to local household food production, sustainable livelihoods and ecological well-being of the catchment area. (Aspirations will be considered in relation to capabilities and capabilities literature.)

Goal 1c: Surface and analyse tensions and contradictions in the activity system to better understand the aspiration-practice relationship, and to inform expansive learning and capabilities development processes to engage with institutions.

2. *Can, and if so, how can expansive learning processes shape conversion factors for turning available resources into functionings that enhance household food security capabilities and ecological well-being?*

Goal 2a: Collectively formulate, prioritise and describe valued functionings, resources and conversion factors necessary for improved household food security and water stewardship practices (linked to the broader capabilities for life and security).

Goal 2b: Identify and describe expansive learning processes that shape articulation of functionings, and conversion factors that can turn available resources into functionings that, in turn, expand household food security and water stewardship capabilities (addressing aspiration-practice relationships).

Goal 2c: Describe and develop a synthesis 'process model' that illuminates or illustrates the relationship between expansive social learning and the capability approach.

The 2012-2015 WRC project brought professionals and researchers from various fields and organisations to work together in an interesting transdisciplinary process to collectively come up

with a comprehensive understanding of the constraints, challenges, opportunities and interventions required for empowerment of women to promote household food security and rural livelihoods through increased water productivity, with a focus on crop cultivation, amongst others, in the Eastern Cape Province. As a result, the research concluded with recommendations for policies and strategies to achieve people-centred water use, food production and rural development, with a particular focus on women (Denison et al., 2015). The deep contextual analysis that we, as a group, developed, was critical to lay the foundation for my study as it assisted me to question and analyse the key constraints and contradictions found in livelihood activity systems in Lutengele with a second generation Cultural Historical Activity Theory (CHAT) framing, (described in Chapter Six). Chapter Six describes the small-scale food production activity system in the participating villages in detail within which the analysis on capability expansion and learning theories for this study is situated. However, the WRC research process did not allow me to follow the expansive learning process that I had envisaged in order to follow up on the learning and change in the livelihood aspirations, practices and capabilities in my chosen research location. It is recognised in Amartya Sen's Capability Approach (CA) that development interventions or initiatives should focus on "expanding the freedom that deprives people from enjoying their *valued beings and doings*" (Sen, 1999, p. 3); in other words, interventions in the Lutengele area should be related to what people value or have reason to value. Hence my interest to work together with the women farmers group to mediate an expansive learning process for improved capability towards sustainable livelihoods and empowerment in a catchment. Relevant to this focus, Robeyns (2005a, pp. 106-107) notes that "in Sen's case, it is not at all clear how these processes of public reasoning and democracy are going to take place ... at present not enough work seems to have been carried out on the kind of democratic institutions that the capability approach in practice would require".

Furthermore, the WRC 2012-2015 research project (Denison et al., 2015) that I was part of, and that initiated this study, lacked depth and application in the field of sustainability. There was an emphasis on engaging with research participants in mapping out agricultural livelihood aspirations and inputs needed to support the realisation of associated capabilities but not enough on situating these practices in social-ecological sustainability. Therefore I dedicated Chapter Two, which describes the methodology and analysis process, to framing my study in the watershed development approach in the South African catchment management context with local forums or networks as the platform for voice, decision-making and expansive learning

processes from where transformative agency can potentially emerge, and new capability manifest.

With this as the backdrop, my research continued beyond the WRC project in 2015 with the continuation of an expansive learning process until 2018. My intention was to strengthen and support deliberation and democratic participation with the women farmers group or community of practice for situated strong self-evaluation, co-learning and empowerment as an ongoing process, and to expand capability towards sustainable livelihoods (particularly in relation to food security) and ecological well-being. At an analysis level, I was also interested in describing the features of an expansive learning process in relation to the capability approach. For this reason, I have chosen CHAT and expansive learning as the theoretical framing and as methodology to facilitate and understand the move from aspirations of the group of women involved, to the expansion of their agricultural capabilities, agency and well-being on the basis that CHAT foregrounds the fundamental concepts to understand the cognitive and material (collective actions) processes that take place through manifestations of agentive actions or transformative learning actions.

Lastly, within the 'slippery' reality of local gender dynamics, roles and responsibilities and the contextual meaning of empowerment being so deeply rooted in local culture and tradition, my study also aimed to understand how these power dynamics may constrain or enable women's livelihood capability expansion, transformative agency and 'freedoms'. It was as a result of conducting my literature review on gender and women empowerment as well as the capabilities approach that I had to deepen my analysis beyond looking at the change in the women's livelihoods practices emerging from a mediated expansive learning process. I, therefore, furthered my analysis by exploring other intangible changes such as change in the women's power relations, voice, status, way of being and thinking, etc. that evolved from such learning processes and consequently resulted in an array of new opportunities. My interest therefore went beyond following up change in human activity as set by the women's aspirations and their valued beings and doings to also looking into the analysis of power dynamics and transformative agency to turn resources into functionings, or to choose not to do so, via expansive learning.

Table 1.1: Summary of broader WRC project research activities in relation to the expansive learning actions (Engeström, 2000) or phases in this study

Phase One: Exploration and Investigation (2012 – 2015) <i>WRC Research Project</i>	Phase Two: Expansive Learning (2016 – 2018) <i>Interventionist Workshops</i>	Phase Three: Synthesis 'Model' (2019 – 2021)
· Socio-cultural and historical analysis · Understanding systemic view of the agricultural activity system and individual households · Identifying and prioritising agricultural goals and aspirations (valued functionings) · Investigating current agricultural capability and underlabour 'structural' tensions and contradictions · Defining women's perception of empowerment and well-being · Understanding women's division of labour · Consolidating strategic recommendations for agricultural capability expansion and empowerment	· Situating agricultural activity and aspiration in social-ecological well-being · Defining scope (spatial, actors and stakeholders) for engagement in the learning process · Further analysis of agricultural capabilities and dissonances · Modeling and examining novel solutions · Implementing and reflecting on co-developed solutions · Consolidation of some solutions into practices leading to capability expansions and new aspirations	· Describing and synthesising the relationship between the expansive social learning process and capability expansion
<i>Research Question 1</i> <i>Goals 1a, 1b and 1c</i>	<i>Research Question 2</i> <i>Goal 2a and 2b</i>	<i>Research Question 2</i> <i>Goal 2c</i>
Chapter 2 and 6	Chapter 2, 7 and 8	Chapter 9

Overall, this project places value on the role of learning in overcoming of social, economic and environmental challenges and, at a micro level, empirically examines possibilities for the emergence of democratically constituted and sustainability oriented forms of knowledge, skills, values and capabilities that were promoted during the UN Decade of Education for Sustainable Development ESD between 2005 and 2014 (UNESCO, 2005) and nowadays taken forward by the Global Action Programme on ESD (GAP) and the ESD 2030 agenda (UNESCO, 2020; UNESCO, 2021), which is striving to advance the 2030 Agenda for Sustainable Development and its 17 Sustainable Development Goals (SDGs) (UNESCO, 2017).

The final phase of the study, Phase Three, describes and synthesises the relationship between the expansive social learning process and capability approach. Table 1.1 above summarises the research activities of the broader WRC project (Phase One) from which this PhD study originated and expanded (Phases Two and Three). The research phases are described in more detail in the methodology chapter (Chapter Five).

The following section briefly outlines the study's methodology of expansive learning that guided the interventionist workshops in Phase Two as depicted in Table 1.1.

1.4 Brief introduction to the methodology

In order to address the research questions specified above, this study draws on a formative interventionist research orientation (after Engeström's concept of expansive learning). Expansive learning emerges from Vygotsky's early work on mediation of learning through language and culture, which gave rise to first generation cultural historical activity theory. Cultural Historical Activity Theory (CHAT) second generation and the Capability Approach (CA) have helped me to seek deeper insight into the relationships that exist within the activity system of the subjects and the objects they are working on, mediating tools that are used, rules that govern the use of the system, the community of practice involved in the system and the division of labour among those working in the system (Daniels, 2008), paying special attention to understanding the relationship between resources and the conversion factors that are necessary to turn resources into functionings, a process necessary to unlock capabilities or valued beings and doings (Sen, 1999; Robeyns, 2005a) associated with household food security and ecological integrity. CHAT has therefore been used to better understand the different relations, contradictions and tensions within the women farmers group activity system that contribute to, and constrain the empowerment of women in the context of food security and sustainable livelihoods. A detailed description of CHAT is provided in Chapter Four.

The expansive social learning process (supported by interventionist research workshops) with the women farmers' group (or local network) has also been analysed. Such a process has not only allowed for defining collective aspirations and capabilities in relation to social-ecological livelihoods and catchment management and the co-construction of new knowledge but also improved sustainable livelihood practices, ecological integrity, institutional capacity and women empowerment. According to Daniels (2008, p. 126), expansive learning "involves the creation of new knowledge and new practices for a newly emerging activity; that is, learning embedded

in and constitutive of qualitative transformation of the entire activity system. Such transformation may be triggered by the introduction of a new technology or set of regulations". This means that expanded food production capability could be unlocked by, for instance, improving household access to water storage systems and new forms of knowledge. Chapters Seven and Eight describe this process in detail, making reference to the introduction of new material stimuli in the transformative learning endeavour in the Lutengele villages, in order to carefully analyse the learning-change-power relationships in the context of this study.

The scope of my study involves ten individual cases embedded within the primary activity system or food production activity. These cases were selected based on the demographic and household social-economic differences found in the research context. Therefore ten case studies based on women from different households are carefully analysed to build up the contradictions underpinning the attainment of food security and contribute to the analytical conclusions regarding livelihoods capability expansion-agency-empowerment relationships in sustainability or healthy catchments.

1.5 Synoptic overview of the chapters

This thesis is composed of nine chapters. The following section offers a brief synopsis of the subsequent eight chapters:

Chapter Two is divided into three main sections. The first part situates the agricultural activity within the wider social-ecological system or catchment, the drivers of degradation of the natural resources and the socio-economic landscape of the Eastern Cape province that combine to make the case for improvement of sustainable agricultural practices with a particular focus on women. The chapter also presents the argument for investment and support to women as drivers and beneficiaries of agriculture as well as a short overview of gender mainstreaming efforts and pitfalls in development programmes. In light of this, the rationale for learning processes that support the capabilities related to sustainable food production amongst the rural poor, especially with a focus on women is highlighted. The second section of this chapter considers integrated catchment planning and management approaches for the advancement of participatory governance, democratisation of natural resources and ultimately a more equitable economic trajectory and livelihood opportunities. The approaches take into account rain water harvesting interventions for food production as well as for natural resource management and adaptation to

climate change. The final section provides an introduction to education and learning in the Capability Approach as an opportunity to develop mutually reinforcing relationship to transformative learning pedagogies and methodologies such as expansive learning.

Chapter Three presents the conceptual and theoretical relationship between the understanding of aspirations and their position in the Capability Approach. Aspirations in this context have the potential to drive agency and capability expansion on both the individual and the collective plane. The chapter also describes the dualistic relationship between aspirations and contexts, the latter being a precursor for moulding people's terms of recognition and *Capacity to Aspire*. Finally, this chapter considers collective agency that emerges out of social encounters and learning interventions as the procedural ingredient for collective action, collective capability and expansion of aspirations.

Chapter Four introduces the ontological and epistemological theories drawn on in this study. The first section presents the ideas that categorise the concept of transformative agency as agency that evolves in and out of expansive learning processes and activity theory. The epistemological theory of Cultural Historical Activity Theory (CHAT) is then discussed in order to illuminate the origins of expansive learning and transformative agency. The chapter proceeds by explaining the foundational principles of 'double stimulation' and 'ascending from the abstract to the concrete' as principles underpinning the methodology of expansive learning in formative interventions.

Chapter Five describes the methodological framing of the study and insights into the research design decisions. Details on the case study and embedded cases are also outlined including the research site, selection of participants and how access was negotiated. The chapter further provides an account of the data generation methods employed, the different phases of data analysis as well as aspects of research validity, trustworthiness and research ethics.

Chapter Six presents the case study site of Lutengele women farmers group. A detailed cultural-historical as well as socio-economic, political and environmental account is outlined. The description also focuses on the role that culture, norms and traditions play in women's ability to pursue their agricultural aspirations, as well as their well-being and empowerment. Furthermore, the evolution of agriculture practices are described drawing on Second Generation CHAT. The chapter also includes narratives depicting the individual cases pertaining to ten of the

participating women farmers in the study. The chapter concludes by surfacing the contradictions inhibiting the women's group to expand their capability towards more sustainable and productive food production practices.

Chapter Seven discusses the findings generated from the early stages of the expansive learning cycle involving the Lutengele women farmers group. CHAT was used drawing on Developmental Work Research (DWR) methodologies for the unfolding of agricultural capabilities and learning pathways with the assistance of mediating tools and newly co-designed stimuli. The chapter describes how the initial Change Laboratory workshops were used to trigger agentive actions and learning to the level of examining potential solutions in the shaping of the object of activity and participants' commitment to overcome problematic situations.

Chapter Eight presents the transformative stages of the expansive learning cycle undergone by the research participants. In this chapter the formative interventionist researcher introduced both material and conceptual stimuli into the learning process, which assisted to catalyse, and amplify the participants' transformative agency and the movement from an abstract conception of activity to its reconfiguration and concrete realisation (in the form of sustainable capabilities or functionings) via the method of double stimulation and the abstraction of a germ cell. The chapter also outlines the beneficial outcomes derived from such a process and the participants' sense of empowerment and capacity to aspire as whole.

Chapter Nine (the final chapter) concludes the study and outlines insights and recommendations drawn from the different chapters and presents suggestions for future research.

1.6 Conclusion

This chapter has presented a brief introduction to the WRC project from which this study originated and built on by taking the policy recommendations and strategic interventions proposed by the 'mother' project into an expansive learning process in one of the study sites, the Lutengele villages near Port St Johns (Eastern Cape). This PhD study makes a contribution to the field of sustainable agricultural development and women empowerment in rural South Africa by exploring the impact of social learning and expansive learning methodologies on a group of women's capability expansion and empowerment as well as the well-being of their local catchment. The research questions and goals were presented as well as the unit of analysis and

case study site. Finally, the chapter provided an overview of the structure of the thesis. The following chapter situates the main activity investigated in this study, the agricultural or food production activity, within a broader social-ecological system or catchment as well as within the Environment, Education and Capability context.

CHAPTER TWO: INTEGRATED CATCHMENT MANAGEMENT, AGRICULTURAL LIVELIHOODS AND HUMAN DEVELOPMENT

2.1 Introduction

This chapter describes the context in which this study is situated – the Mzimvubu Catchment of the Eastern Cape province in South Africa. Section 2.2 also describes the drivers of poverty and food insecurity in this context and the economic development and empowering potential for smallholder or small-scale farming to enhance rural living. Section 2.3 provides insights into the role that women play in these landscapes to drive agrarian livelihoods and in turn the well-being of their families and communities, as well as the ecological sustainability and management of their natural resources. Attention is then drawn to some appropriate responses and interventions that foster integrated planning, development and management of social-ecological systems and the activities (Section 2.4) using Integrated Catchment Management and Watershed Management approaches. In this section, Section 2.4, the role of land-water forums or networks is highlighted as social spaces for driving the agricultural agenda through decentralisation and democratisation of productive resources such as water, as well as spaces for collective learning and action. The Capability Approach theory is brought into play with transformative learning pedagogies such as expansive learning. Sections 2.5 and 2.6 expose the need for re-conceptualising skills development programmes widely adopted in agricultural extension to consider capabilities, agency and ‘freedoms’.

2.2 Introducing the Mzimvubu Catchment

Catchments² are increasingly understood as complex socio-ecological systems involving numerous interrelated elements from the natural environment and the human dimension. These factors and relationships influence land, water and biological resource-use; the way in which they take place can have either beneficial or negative consequences for the system as a whole (Pollard, Du Toit, & Biggs, 2011). Biophysical degradation of the catchment in the form of erosion,

²The catchment of a river is the land area that provides the source area for water draining to the river, and all material carried within in. This includes eroded soils, dissolved minerals and various pollutants including fertiliser, pesticides and ubiquitous plastic waste. The catchment is also the land surface on which we as humans live and from which we derive our main sustenance. Our actions on the catchment surface have a direct impact on the flow of water into a river and the quality of that water. A catchment is therefore the most logical management unit for any water-based activity (Rowntree, Conde-Aller, Fox, Duma, & Ntshudu, 2018). This study is framed, therefore, within a catchment context.

biodiversity loss and reduced productivity, among other trends, is a widespread concern and occurs within this dynamic complex system where people impact the environment and the environment in turn impacts on people. There is a direct interdependence between healthy catchments and healthy people as people are directly dependent on the services that these ecosystems provide (e.g. water, nutrition, forest products, grazing, etc.). Ecosystems can also act as regulators of climate, provide cultural linkages, economic opportunities and support life on Earth as a whole (Millennium Ecosystem Assessment, 2005). Ecosystems therefore can provide the essential inputs required for generating capabilities and sustaining many of the functionings required for human development both at the individual level (e.g. psychological and physical health) as well as the collective (e.g. cultural identities, social relationships, etc.). To sustain these capabilities in the long term would depend on how these ecosystems are managed and used and if these natural resources are not available equitably, the capabilities and well-being of those people who do not have access to such ecosystems services may be compromised (Pelenc, Lompo, Ballet, & Dubois, 2013, pp. 79-86). Ensuring ecological sustainability requires approaches and strategies that deal with both the biophysical and socio-economic drivers affecting and perpetuating environmental degradation, by both managing detrimental activities, and providing incentives or benefits to those using the resources so that their activities will both generate increased returns, and reverse the trends of unsustainable development and other socio-economic illnesses.

In this study, the food production activity that brings together the individuals or women food growers from the two participating villages in the Lutengele area is situated within the wider context of the Mzimvubu catchment. The Mzimvubu catchment and river system lies along the northern boundary of the Eastern Cape province of South Africa and extends for over 200 km from its source in the Maloti-Drakensberg watershed on the Lesotho escarpment to its estuary at Port St Johns where it joins the Indian Ocean. The Mzimvubu River System is one of the few 'near-natural-rivers' in South Africa but is classified as vulnerable as a result of rapid rates of degradation of its ecosystems (National Freshwater Ecosystem Priority Areas [NFEPA], 2011). The freshwater systems and adjacent matrix of grassland, forest and thicket provide a range of ecosystem services that support the largely rural and peri-urban settlements with water provision, erosion control, infrastructure protection, fodder for livestock and food security, and materials for household and community use (Environmental and Rural Solutions - Conservation South Africa [ERS-CSA], 2011).

The map below in Figure 2.1 indicates the location and spatial delineation of the Mzimvubu River Basin located in the northern portion of Water Management Area 7 (Mzimvubu to Tsitsikamma), a system that is still undammed and characteristic of inadequate water supply to rural settlements in particular. This study is located in the T36 near the town of Port St Johns.

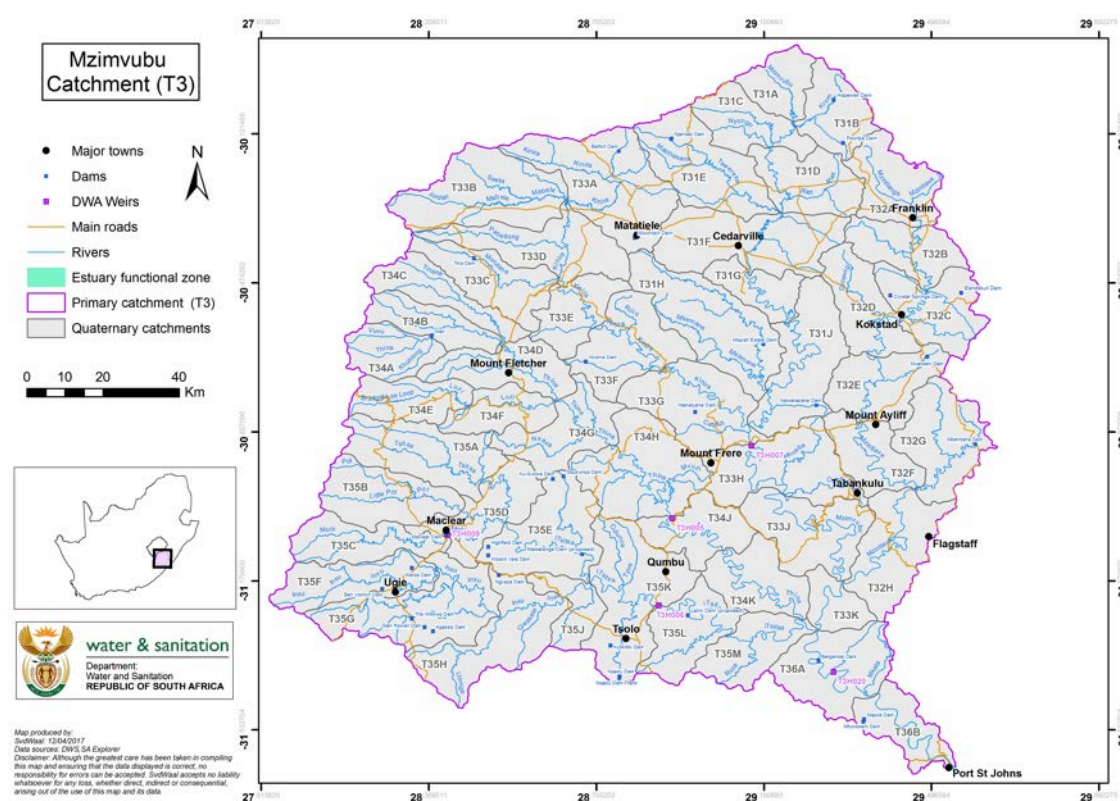


Figure 2.1: The location of Port St Johns in the Mzimvubu Catchment (T3)

2.2.1 Degradation of natural resources

In South Africa ongoing land degradation of catchment areas is on the increase. It is estimated that close to 18% of the natural land cover in the country has already been transformed (Department of Environmental Affairs & Tourism [DEAT], 2008) and environmental degradation is visible in some areas impacting negatively on water resources. Poor land use management in catchment areas can increase sediment in reservoirs, rivers and estuaries, linked to loss of topsoil. Inappropriate land use can also perpetuate changes in surface runoff and infiltration capacity of the soil leading to flood events, reduction of groundwater recharge, increasing pollution, loss of biodiversity; it can broadly reduce the resilience of the system and its assimilative capacity to cope with changes and uncertainty such as climate change risks. Furthermore, land degradation can have other implications such as financial costs and negative all-round effects. It is estimated that soil degradation alone costs South Africa an average of

nearly R2 billion annually in dam sedimentation and increased water treatment costs (ibid.). The natural resource base, particularly in areas under communal land tenure systems, such as the one for this study context, is in decline due to poor local management and leadership. The Mzimvubu catchment comprises approximately 2 million hectares and approximately 67% of communal land held in the former Transkei homeland (ERS-CSA, 2011). The communal land tenure is complex with communal land under the custodianship of the Department of Rural Development and Land Reform (DRDLR) on behalf of the land rights holders or communities living on the land. Local management falls under the jurisdiction of the traditional authority system of area chiefs or senior traditional leaders and village headmen in consultation with DRDLR. These areas are characteristic of poor socio-economic status, poor service delivery and limited employment opportunities. Furthermore, the loss of healthy catchment ecosystems in these areas has a negative impact on the rural livelihoods that are directly dependent on the natural resources (e.g. agriculture) thus perpetuating the poverty cycle in these areas in terms of capability deprivation and well-being (Sen, 1999), an aspect relevant to the livelihoods herewith investigated.

2.2.2 Socio-economic challenges: Poverty, food security and gender equity

High levels of poverty and deep inequality remain major challenges in post-apartheid South Africa and black Africans living in the rural areas of the country are the most severely affected by these. It is estimated that the population within the Umzimvubu Catchment exceeds 2.2 million people, 85% of whom are living in rural settlements with an unemployment rate higher than the national average of 27% (ERS-CSA, 2011). Due to political impositions, women mostly populate the rural landscape as a result of males migrating to urban areas searching for work (Denison et al., 2015). As alluded to in Chapter One, at the start of this study in 2012, it was estimated that 23 million people (45.5%) of the population in South Africa were living in poverty (based on the Upper Bound Poverty Line) and 10.2 million were classified as extremely poor, which means they were living below the Food Poverty Line. The incidence of poverty in rural areas was more than twice that of urban areas, and the severity of poverty for rural people was 2.9 times worse than for urban people. The Eastern Cape was ranked as the second-poorest province in the country, with 69.5% of residents assessed as poor. The province had the highest unemployment rate at more than 40%, which is far higher than the national figure of 25%, and social grants provided the main source of income for 37.9% of the households (StatsSA, 2012). Black African women living in rural areas of the Eastern Cape are therefore likely to be among the poorest in the country. Chant (2007) argued that the majority of the world's poor are women. Additionally,

there is a growing number of women-headed households, which are thought to be disproportionately poor compared to male-headed ones as female-headed households typically have fewer members but more dependents than male-headed households. Female-headed households are often considered 'the poorest of the poor'. Additional studies suggest that the majority of households in rural areas (about 80%) earn incomes that are far below the poverty line and belong to the ultra-poor poverty class (Monde, 2005; Hebinck & Monde, 2007; Shackleton & Hebinck, 2018). Although South Africa is classified as a food-secure country in that it is a net exporter of agricultural products, the situation is different when food security is measured at household level. In 2011 it was found that 26% of the national population had inadequate access to food, and 13.4% suffered from hunger (StatsSA, 2014).

Poverty is also closely associated with lack of education. It is widely recognised that education of working-age adults is a major factor in opening up opportunities for the productive capacity of households (Food and Agricultural Organisation (FAO), 2011). However, despite efforts in South Africa to advance equal education, social and gender differences are still widespread, creating a shortfall in human capital in the agricultural sector. This deprivation of knowledge and skills is manifest in women's abilities to read, write, count, make calculations, keep records of income-generating activities, and communicate and negotiate for fair prices and loans. Education and training are powerful tools against poverty and hunger and are linked to women achieving their productive goals (Malik & Courtney, 2011 as cited in FAO, 2011); improved education thus contributes towards women's empowerment within the agricultural context, as well as in other contexts. FAO (2011) has argued that when women receive the same levels of education, experience, and farm inputs as men, there should be no significant differences between male and female farmers' levels of productivity, and thus empowerment. According to Doss (2013), not only can education (or a lack thereof) directly impact on productivity through the improvement of agricultural practices, but it can also indirectly impact on how women deal with intra-household injustices by increasing their bargaining skills and power. This is the context in which poverty and food security challenges are found in the rural Eastern Cape such as the Lutengele villages. In light of these challenges, there is consequently a demand for learning processes that support the capabilities related to sustainable food production amongst the rural poor, especially with a focus on women.

2.2.3 Small-scale agriculture to address hunger and poverty

In the rural provinces of the country, such as the Eastern Cape, where opportunities for wage labour employment are very low, rain-fed agricultural activities remain an important part of livelihoods, albeit small at around 10% (Vink & Van Rooyen, 2009). Agriculture is the third most important livelihoods means after remittances and wage labour from low-skilled jobs (Machethe, 2004; StatsSA, 2012; Shackleton & Hebinck, 2018). It is well established that a poorly functioning rural economy with poor infrastructure, weak market linkages, and poor agricultural support services tends to isolate rural households from the mainstream economy, including important agricultural value-chains (Denison et al., 2015). In addition, weak and conflicted land institutions add uncertainty and limit transactional opportunities, and small-scale farmers in rural areas have limited access to both human capitals (knowledge and skills) and natural capitals (land and water) (Backeberg & Sanewe, 2010). However, when these resources and opportunities are available, access and distribution of these productive resources affect women and men differently, with women being the lower receiver or beneficiary. Both within Government and in wider academic circles there is an established contemporary view that food production and related agricultural enterprise development at various smallholder scales is the priority opportunity to address these pressing social and economic development challenges (RSA, 2011a; Wenhold & Faber, 2008; Shackleton & Luckert, 2015). Aliber and Hall (2012, p. 557), in particular, argued for a focus on small-scale agriculture in South Africa's poor socio-economic contexts as follows:

In view of South Africa's massive unemployment problem, government has determined that the underlying purpose of having a small-scale farmer emphasis is to maximise the creation of livelihoods. The drive must be to identify the sector's potential to contribute to labour absorption and poverty reduction, particularly in the economically depressed areas of the ex-Bantustans, where (self-) employment opportunities are desperately needed, and then help it to fulfil this potential.

This is echoed by Shackleton and Hebinck (2018) who stated that in rural South Africa cultivation continues to be an important part of peoples' livelihoods and way of living. Opposed to the general de-agrarianisation debate, contemporary farming trajectories for future of small-scale farmers could potentially lead to 'reactivating' of agrarian activities should relevant policies and strategies be in place; what is needed is an economic environment that is enabling for farmers to enter the commodities market value chains and that the social actors or farmers find ways to continue to farm (ibid.).

2.2.4 Water for food: Challenges and opportunities

South Africa is faced with water scarcity risks with an average annual rainfall of 465 mm and a history of deep inequalities regarding the distribution of both land and water (Versfeld, as cited in Kahinda et al., 2008). Inequalities of this nature affect particularly the rural poor with neither access to water for productive purposes nor access to benefit for other water uses (Cullis & Van Koppen, as cited in Schreiner, Pegram, & Von der Heyden, 2009). Although measures are put in place to address these inequalities, the reality is that water supply-demand levels are not being met as most of the water in the country has already been captured, stored and allocated to users leaving a good proportion of people as 'water poor'. At the same time it is recognised in the National Climate Change Response White Paper (NCCRWP) (RSA, 2011b) that increasing vulnerability to climate changes will affect agriculture and food security, The NCCRWP identifies increases in overall temperature and changes in rainfall patterns, with increased frequency of heavy rainfall and extreme weather events with longer and more intense droughts. South Africa is vulnerable to these changes. Climate change will impact on agriculture and food security, especially amongst smallholder and more vulnerable farming communities and individuals such as women. The NCCRWP projections for South Africa are that temperatures will raise between 1-2 degrees on the coast, and between 2-3 degrees in the interior. By 2100, warming is projected to reach around 3-4 degrees along the coast, and between 6-7 degrees in the interior. The NCCRWP states that:

With such temperature increases, life as we know it will change completely; parts of the country will be much drier and increased evaporation will ensure an overall decrease in water availability. This will significantly affect human health, agriculture, other water-intensive economic sectors such as the mining and electricity generation sectors as well as the environment in general. Increased occurrence and severity of veld and forest fires, extreme weather events and floods and droughts will also have significant impacts. Sea-level rise will negatively affect the coast and coastal infrastructure. Mass extinctions of endemic plant and animal species will greatly reduce South Africa's biodiversity with consequent impacts on eco-system services. (RSA, 2011a, p. 9)

Water availability in South Africa is a key climate change-related vulnerability, and negative impacts on the availability of water will be felt by people, ecosystems and the economy, including smallholder farmers (Department of Environmental Affairs [DEA], 2018). While the Mzimvubu system is one of the highest systems of mean annual runoff in SA, the lack of water infrastructure means the majority of its population still remains 'water poor'. The area is also affected by climate variability where seasonal rainfall averages are fluctuating with prolonged dry periods and increased number of heavy precipitations and storms. One of the major water quality drivers is

the excessive sediment found in the water courses as a result of storm water runoff coupled with poor land management such as overgrazing and unsustainable agricultural practices, among others (Rowntree et al., 2018). Furthermore, climate change risks place concerns on the resilience of woman in rural areas. “Woman will have to labour harder and longer to ensure their families have food, fuel, and water. It is known that in Africa, woman do 90% of the work gathering water and food, and children, in particular girls, often share these responsibilities” (RSA, 2011b). The climate change challenge makes water harvesting and conservation a suitable practice towards improved food production and cultivation, as observed at the households involved in the Department of Water Affairs and Forestry (DWAF) RWH project carried out in the Lutengele villages prior to this study. This is described in more detail in Section 2.4.2 below.

2.2.5 Cultivation and impact on land resources

Poor cultivation practices have also been identified as significant drivers of land degradation in South Africa exacerbating soil depositions in the water courses as well as degenerating the soil structure and fertility and thus the quality of the crops (Rowntree et al., 2018). Several agricultural approaches are widespread, such as agroecology, permaculture and others; with the aim of applying practices that work with and not against the conservation and protection of natural resources and ecosystems. Such approaches have been tried out and proven to assist with increasing the potential services that these ecosystems provide in various forms (e.g. economic returns, ecological integrity, etc.). Hence the urge for this study to frame the solutions to the expansion of livelihoods capabilities of the women’s group involved within these ecological orientations and practices.

2.3 Women as potential drivers of agricultural activities, rural economic development, well-being and ecological sustainability

The underperformance of agriculture in many developing countries is also due to the fact that women are affected by the so-called ‘gender gap’ which hinders their productivity and reduces their contributions to the agriculture sector and to the achievement of broader economic and social development goals. Governments, donors and development practitioners now recognise that agriculture is central to economic growth and food security – particularly in countries where a significant share of the population depends on the sector (FAO, 2011). The Food and Agriculture Organisation’s report on *The State of Food and Agriculture: Women in Agriculture* stated that closing the gender gap in agriculture is essential to increasing agricultural productivity, achieving food security, and reducing hunger (ibid.). FAO estimated that if women had the same

access to productive resources as men, they could increase yields on their farms by 20-30%. This could raise total agricultural output in developing countries by 2.5-4%, which could in turn reduce the number of hungry people in the world by 12-17% (ibid.). Increasing women's individual and collective agency also leads to better outcomes, institutions, and policy choices and can have positive impact on their children by also shaping the opportunities of the next generation (World Bank, 2012), their family as a whole and their community well-being due to their role in taking care of the ill. The positive impact of women involved in agriculture is also manifested in the management of their environment (Finne as cited in Chant, 2007). In the context of this study, rural women tend to engage in small-scale agricultural and household related chores. They spend many hours of the day collecting water from the rivers and streams, firewood from the forest, ploughing the fields and attending to small livestock. Therefore, they are intimately engaged with and knowledgeable of their environment (Sachs, 1996). Women are one of the main users and managers of natural resources in rural contexts; hence the positive or negative impact that this group may have on their immediate landscape or catchment area and the demand for maintaining or increasing their capability to consider and manage their natural environment.

2.3.1 Gender mainstreaming efforts, cultural norms and division of labour

As early as 1975, the United Nations dedicated the Decade for Women investigation into development efforts for improving women's conditions and into exploring the underlying factors for inequalities, particularly with focus on earning power, literacy and education, division of labour and discrimination in the workplace (Chant, 2007, p. 32). Gender equality also took the stage in the Millennium Development Goals (MDGs) where the direct relationship between gender equality and the achievement of the MDG targets on reducing extreme poverty and hunger (FAO, 2011) were emphasised. Consequently gender equality has also found its way into the Sustainable Development Goals, *Goal Five: Achieve gender equality and empower all women and girls* (UNDP, 2015). Additionally, the World Bank's *World Development Report 2012: Gender Equality and Development* reinforced this message and identified the significant importance of policies and interventions towards the improvement of women's empowerment for efficient and positive outcomes (Alkire et al., 2013, p. 1). Nowadays, gender has become mainstreamed in all sectors of society, including the water and agricultural sector. In South Africa most government departments have developed gender policies to enable gender mainstreaming within their departments, and some have established structures to coordinate gender mainstreaming and women's empowerment programmes (Denison et al., 2015).

Despite all these efforts, gaps in operationalising gender equity are still found in the development of programmes and their implementation. These so called empowering initiatives often fail to address the real needs or aspirations of women, or to consider their meaningful participation and decision-making, or to ensure equitable access to resources, to name a few (ibid, pp. 20-25). Green (2008) noted that even when opportunities are available, individuals also need capabilities to realise them. This may be as a result of poor ability to navigate through the various power struggles that women face in their societies shaped by the prevailing cultural norms, hierarchical structures, and other informal institutions often overseen by development programmes and policies.

A general perception is that development policy has tended to focus on formal institutions³ while paying less attention to informal institutions as these may be more difficult to analyse and address due to their “slippery” and contested nature (Scoones, 2009). Supporting the development or expansion of livelihoods capabilities through meaningful strategies and intervention (e.g. community empowerment initiatives) not only requires the provision of a strong asset base, but also an in-depth understanding of the contextual factors that shape the institutional arrangements affecting both individual and collective agency for the achievement of acceptable or envisaged livelihoods outcomes (ibid.). These may be particularly related to contextual power relations and norms which contribute to the general constraints affecting women around access and decision-making over productive resources, such as water and land; and intra-household power dynamics dominated by domestic hierarchies or power imbalances (Rice, 2014). It requires the in-depth understanding of the “pluralistic aspect of female agency that enable women to mediate intra-household power relations in order to improve their opportunities for achievement of wellbeing” (Iversen, 2003, p. 100). Age and gender hierarchies also persist in many rural communities in South Africa (Rice, 2014) where gerontocratic authority and rights are also found with the ability to turn the assumed male authority the other way around. The local structures of gerontocratic authority have far more bearing than those based on gender circumstances. Also older women may hold more status and thus have louder voices than younger or newly married women.

Institutions (social norms, culture and traditions) shape gender roles and responsibilities and

³ It should be noted that these study institutions are “humanly devised constraints that regulate social, political and economic interactions’ or “the rules of the game”. Institutions can be i) *Formal* (e.g. laws that govern land tenure, market transactions, or civil rights); and *Informal* (e.g. social customs, routines, taboos, traditions or ‘the way things are done’). Informal institutions include those embedded in and developed out of the *culture* of communities or larger societies (North, 1990, p. 13).

define the kind of labour activities women engage in at household level or outside the household, the hours of work required for these responsibilities to be performed, as well as their position or status in society (World Bank, 2012). These engendered roles and responsibilities for rural women tend to include the management of complex households and pursuit of multiple livelihood strategies. Their agricultural activities typically include producing agricultural crops, tending animals, processing and preparing food, working for wages in agricultural or other rural enterprises, collecting water, engaging in trade and marketing, over and above their reproductive responsibilities of caring for family members and maintaining their homes (FAO, 2011). In South Africa, the legacy of apartheid and labour migration have had a major influence on household dynamics exacerbating the transformation of marital relations under the circumstance of long-term separation, patterns of family formation, including a sustained decline in marriage rates; and the dependency of women and older generations on the wage-earning power of young men, grants and pensions (Montgomery, Hosegood, Busza, & Timaeus, 2006; Rice, 2014) increasing the integration of rural areas into capitalist economies and decline of agricultural activity at large. Some changes in divisions of labour evolving from such historical events as well as other influencing factors such as collapsing labour markets and political disturbances (often leading to social illnesses), have had an effect on gender functions (Mongomery et al., 2006). In sum, “whether women are farmers, entrepreneurs, or workers, many are caught in a *productivity trap*: working hard on an uneven playing field with unequal access to productive inputs. This trap imposes significant costs on women’s welfare and economic opportunities today” (World Bank, 2012, pp. 16-20). There is a global need for development programmes that promote equity in division of labour, but with the acknowledging that gender roles and responsibilities are so rooted in culture, these roles may take a long time to shift (Chant, 2007). Chapter Six provides a more detailed description on how these aspects of gender and gender equity in the agricultural activity and in household dynamics manifest in the context of this study.

Broadly, gender equity⁴ matters for two main reasons. First of all, it matters *intrinsically* because individuals should be granted the ability to live the life they choose to pursue and should be spared from absolute deprivation; and secondly, it also matters *instrumentally*, because greater gender equality or equity contributes to economic efficiency and the achievement of other key development outcomes (World Bank, 2012). This study considers the notion of gender and

⁴ The terms ‘equality’ and ‘equity’ are often used interchangeably; however, they differ in important ways. Equality is typically defined as treating everyone the same and giving everyone access to the same opportunities. Equity refers to proportional representation (by race, class, gender, etc.) in those same opportunities (<http://www.publichealthnotes.com/equity-vs-equality/>).

human development as and *end it itself* (intrinsic value), as well as the relationship between gender to livelihoods outcomes, economic development and ecological sustainability (instrumental value). In summary, gender equity matters for development and thus the advancement of rural livelihoods and sustainability. An investment in women empowerment and development makes good sense. However, it is important to take into account the boundaries between empowerment as a route to poverty alleviation, and empowerment as a goal for women *per se* – women are not the means to an end but the *end* itself.

In this study I am also alerted to the complexity related to the challenge of 'intersection' (or 'intersectionality') in addressing gender inequalities and poverty, as this requires multi-dimensional strategies. Unterhalter (2009, p. 20) suggested that in such situations, 'intersectionist' approaches require social or collective action to challenge the intersecting relations driving women disempowerment and poverty and that in engaging with this context, development practitioners (and thus formative interventionist researchers) should attend to women's voices and their collectives for driving transformation. In the Lutengele villages these aspects are factored into the expansive learning process of collective engagement towards the improvement of local agricultural activity and sustainability but are by no means fully tackled during this study. This requires further multi-level and multi-stakeholder mobilisation, strategies and resources to work together towards the attainment of a fully accomplished activity and outcomes as envisaged by the women's group. These intersecting challenges and mediated process for self-empowerment are carefully described in Chapter Seven and Eight.

2.4 Integrated Catchment Management and the Watershed Management Approach: A response to South Africa's agricultural livelihoods and Natural Resource Management

The focus of this study centres on the support to rural women to expand their agricultural livelihood capability through their engagement in a collective learning project to transform their current activity towards improved activity within ecological sustainability alignment. Integrated Catchment Management approaches may unlock opportunities for collective action through stakeholder engagement and social learning opportunities in a way that would not only intend to realise local people's livelihood aspirations but that would also take into account the sustainability of the natural resources these livelihoods depend on. In general terms, Integrated Catchment Management (ICM) is a specific process to manage the natural resources, people's actions and their livelihoods in a catchment in a sustainable way. ICM links the management of land, water

and related natural resources. The aim is to achieve balanced use for current and future needs. All resources in a catchment and the way they are used are linked and all environmental, economic and social problems must be managed together in a catchment area (Ministry of Agriculture, Irrigation and Water Development [MOAIWD], 2015). Catchments cover a range of sizes, from the scale of a rooftop draining into a water tank or the land surface draining into a small headwater stream, to a large river basin such as the Mzimvubu. Large catchments are made up of a hierarchy of smaller catchments that feed into the greater system. Terminology around catchments differs around the world. The term 'watershed' is often used synonymously with catchment, although sometimes watershed refers to the boundary between two catchments. In this study, the term 'catchment' is used, except where a certain programme or concept has adopted the term 'watershed' (Rowntree et al., 2018). In summary, Watershed Management (WSM) frameworks are guided by the following considerations: i) adoption of the micro-watershed as a building block for planning and watershed development; ii) decentralised and participatory development where the development aspirations of the poor themselves take stage; iii) stakeholder inclusion; iv) capacity building and information sharing; v) sustaining outcomes through linking conservation of natural resources to livelihoods and; vi) monitoring and evaluation (World Bank, 2013, p.11). ICM is based on five key principles that encourage good practice and addresses land degradation and water resource management (MOAIWD, 2015):

1. Land and water resources are parts of a connected natural ecosystem, and so a catchment must be managed as a unit.
2. Catchments change through time and management must adapt to this change.
3. Land and water resources must be managed together, based on best available information.
4. Users and managers must understand what is needed – stakeholder engagement, awareness building and capacity development is very important.
5. There must be a sound balance between economic development and environmental protection.

Likewise, the World Bank (2013) has defined watershed management (WSM) as

... the integrated use and/or management of land, vegetation, and water in a geographically discrete drainage area for the benefit of its residents, with the objective of protecting or conserving the hydrologic services that the watershed provides and of reducing or avoiding negative downstream or groundwater impacts. WSM is ultimately about achieving water resources-related objectives and it is implied that this approach deals with the interaction of land, water and people within complex systems. (World Bank, 2013, p.11)

It is worth noting that both ICM and Watershed Development Programmes are internationally recognised approaches and strategies that foster participatory planning at watershed or catchment scale to ensure cooperative governance in implementation and integrated water resource management (Pollard et al., 2011; World Bank, 2013; Denison et al., 2015). Examples of this approach have been demonstrated to play a significant role in achieving rural development targets. These include job creation, sustainable agricultural livelihoods, gender equity and empowerment, as well as ensuring healthy management of natural resources. As evidence of the impact derived from this type of approach, Rahendra Singh was awarded the 2015 Stockholm Water Prize for his decades of work in rainwater harvesting and watershed conservation in India to support agricultural and environmental water productivity. Since the 1980s, catchment approaches and technical interventions have been implemented in order to improve natural resource management issues and counter catchment degradation impacting on downstream users through the increase of sedimentation and flooding concerns. More recently the focus was broadened to incorporate the potential for sustainably improving incomes of the rural poor through strategies for decentralised governance and participatory development of the communities' asset base, especially the natural assets (World Bank, 2013) thus creating a more inclusive economic growth model and sustainable livelihoods. Catchment development programmes provide a useful planning tool for achieving both rural development and water and land resources conservation and management goals.

Both approaches resonate with the theoretical underpinnings adopted in this study in the sense that sustainable rural livelihoods and women empowerment are situated within an integrated social-ecological system, catchment or watershed whereby the emphasis is on collective planning and decision-making from locally driven inclusive participatory engagements in the form of local networks or forums working on sustainable transformations towards enhancing local small-scale agricultural capability. Core to this study is understanding how collective capabilities, agency and action can be supported by developmental learning engagements (or formative interventions) as well as the evaluation of the direct impact of such engagements on individual women's capability to improve their desired way of being and living.

2.4.1 Integrated Water Resource Management (IWRM) and Catchment Management Agencies (CMAs): Participatory decision-making and agency platforms towards the achievement of envisaged sustainable livelihoods

As alluded to above in the introduction to this Section 2.4, for Integrated Catchment Management to work, the input of all stakeholders and the whole community is needed. The best results are achieved when all players are involved early in the process, which should be underpinned by participative resource use planning supported by scientific input, for instance scientific water-management techniques, and knowledge exchange interventions. In South Africa, Catchment Management Agencies (CMAs) are being established with the broad purpose of managing water resources within their areas of jurisdiction, the Water Management Areas (WMA), for the ultimate benefit of all stakeholders. Broad hydrological and developmental objectives are established and reflected in the CMA's Catchment Management Plans. CMAs are steered by the principles of Integrated Water Resource Management (IWRM)⁵ and the National Water Act (RSA, 1998). Functioning CMAs can potentially regulate, coordinate implementation and monitor catchment management plans down to sub-catchment level through the various structures and institutional arrangements in place and enable feedback loops between the different levels of intervention; allow for reflexive and adaptive processes; and ultimately drive a CMA agenda with stakeholder buy-in across the different scales of the spectrum (e.g. from municipal authorities to local catchment residents).

Three levels of planning have been suggested: i) a Catchment Management Strategy; ii) a Catchment Management Plan (catchment or sub-catchment scale); and iii) a Village Level Action Plan (VLAP). It is important to understand the links between broader catchment and village level planning (MOAIWD, 2015). This spatial planning framework was, for instance, developed for the Neeranchal National Watershed Project in India and adopted in other projects in Africa such as the Shire River Basin Management Project in Malawi and in Ethiopia. Around the world, typical watershed plans are developed at the scale of sub-watersheds or micro-catchment level which tend to include between one to five villages or settlements identifying their own plans and specific local projects or activities. There are benefits when working at local level as this is the smaller planning unit and deeper engagement and consultation could be attained than when working at

⁵ Integrated Water Resources Management (IWRM) has been defined by the Global Water Partnership (2000) as a process which promotes the coordinated development and management of water, land and related resources, in order to maximise the resultant economic and social welfare in an equitable manner without compromising the sustainability of vital ecosystems.

larger scales. Plans, whether at catchment or micro-catchment level, should be integrated so that everyone is working towards the same goal.

Plans should ensure that local strategies are aligned to higher-level strategic catchment management plans and social development priorities. If any of these plans are carried out in isolation within a larger catchment system, there is no certainty that at the required scale (e.g. river basin) the goals of protecting and conserving hydrologic services (and natural resources) and/or managing negative downstream and groundwater impacts will be met unless carefully integrated with higher level objectives. At the same time, local priority areas (e.g. agricultural productivity aspiration and improvement of livestock) should be communicated through the institutional channels, such as a Catchment Management Forum (CMF), for these plans to be relevant and of value to the catchment's residents. Chapter Seven outlines the spatial planning scale, or micro-catchment, and stakeholder reach adopted in this study by the research participants.

At present there are nine WMAs in South Africa, one of which is Mzimvubu to Tsitsikamma WMA in which the Mzimvubu catchment occurs. According to the Department of Water and Sanitation (DWS, 2014), these CMAs will be better able to promote equity through more effective water [and land] resource management, greater responsiveness to the needs of poor and marginalised communities, and through closer links with stakeholder groups in their WMAs. Stakeholder groups and communities should be empowered by CMAs by being involved in structures such as catchment committees, catchment forums and water user associations. Water-land forums or networks are also being considered in other part of the Mzimvubu catchment namely the Tsitsa River catchment.



Figure 2.2: Water Management Areas in South Africa (DWA, 2013)

In summary, the aim of the CMAs with their specific structures is sustainable, equitable and efficient water resources management through local relevance, appropriate management structures, greater opportunity for involvement and feedback by local stakeholders, and greater opportunities for integration with other local planning and development initiatives (Lotz-Sisitka & Burt, 2006). As alluded to above, at the lower level of water management are Catchment Management Forums (CMFs). These are promoted as networked spaces to address the aspiration-justice tensions that still exist in the democratisation of water resources in the country, including for the voiceless rural poor and those who are marginalised such as women. Participation of women, as promoted by IWRM approaches in water planning and decision-making has taken priority in development agendas and policies in South Africa as it is recognised that women, to the same degree as men, are critical stakeholders (Hemson, 2002) in the achievement of justice and equity in the democratisation of water resources. Therefore, IWRM and participatory resource management are inseparable (Lotz-Sisitka & Burt, 2006). Participation in IWRM involves both a focus on setting up a new institutional structure such as CMF or Village-based Management Committee, as well as the agency of the individuals involved in such structures to make decisions and act on them in the context of IWRM. The development of agency as the capacity to participate effectively within these structures has been generally

given inadequate attention, particularly that of marginalised stakeholders' participation and so there is a need to find ways of enabling equal access to participatory structure and agentive processes (ibid.). For women particularly, their effective participation and 'gender voice' in these social networks has the potential to collectively exercise agency and ultimately shape their own opportunities, as well as break down socially constructed norms and perceptions that limit their individual agency and capability for a life of their choice (World Bank, 2012). Women's representation is an area where one finds the biggest gender gaps, and, like so many gender inequalities, this is a problem that is pervasive across the globe (Tripp, 2010). It is therefore critical that the capability to participate in such forums is nurtured, particularly for the poorer and subordinated groups and individuals linking the local micro-politics to good governance towards natural resource management and connected livelihoods (Cleaver, 2007). Effective participatory methodologies are needed in order to disrupt 'business as usual' and challenge the power dynamics often present in such public forums moving from decision-making platforms to places where agency is exercised through practice (ibid.). Thus, in such decision-making forums, from a human development perspective, the poor should make decisions about themselves and be able to exercise the necessary agency to realise their aspirations.

The development of catchment forums within the Mzimvubu basin was addressed in this study with the aim of building a local village-based CMF in the Lutengele area as well as promoting civil society participatory capability (with a gender focus), and in the long run, fostering functional institutional relationships between CMFs and CMA at sub-catchment scale. The building blocks towards such a network have been established during this study and will be examined in Chapter Seven.

2.4.2 Integration of rain water harvesting practices to reduce erosion and boost agricultural production within a watershed development framework

A watershed development framework provides an inclusive and coherent framework for implementation of agricultural development initiatives supported by rain water harvesting approaches. Watershed approaches and strategies, fuelled by a participatory, polycentric governance and an integrated ethos, have the potential to play a significant role in achieving rural development targets envisaged for the country. These may include job creation, sustainable agricultural livelihoods, gender equity and empowerment, as well as ensuring healthy management of natural resources. Within this framework, rain water harvesting (RWH) techniques are central to watershed development, especially in poor areas with marginalised

populations who face significant problems of land degradation. The term 'rain water harvesting' refers to collecting, conveying and storing rainwater for various end uses such as agricultural production, domestic purposes or environmental/conservation outcomes (Oweis, Prinz, & Hachum, 2001). RWH is used as a way to restore and drought-proof local ecosystems, capture rainfall and runoff and put it into productive use for enhancing agricultural productivity in rain-fed areas. Linked to rainwater harvesting is soil water conservation through increasing infiltration and moisture retention in the soil. This combined approach to water management is integral to this study as all activities adopted sought to either reduce runoff and increase soil moisture availability or capture runoff for productive use. Runoff control has the additional advantage that it also reduces erosion and captures soil carried by the runoff, and should therefore be included in any rehabilitation strategy that aims to reduce soil erosion and trap mobile sediment.

RWH works within the spatial entity of a catchment that varies in scale depending on the application. Figure 2.2 illustrates various RWH methods applied within a catchment or watershed development approach. RWH at this scale is being considered globally as a tool that can be adopted to ensure the hydrological functioning of catchment areas (Rowntree et al., 2018). RWH can address land-use degradation as well as enhance rain-fed crop production and domestic water supply. It can also be used to improve grasslands and support livestock, to foster plant nurseries and support forestry projects (ibid.). RWH could be considered as relevant green engineering and contemporary innovation that builds on traditional water management techniques (ibid.). RWH also helps to reduce the growing demand placed on the country's limited water resources (ibid.). As land resources deteriorate and the demand on freshwater resources increases in South Africa, interest in building on some traditional technologies such as rain water harvesting is rising amongst environmental, rural development and government agencies (ibid.). These have evolved, through Water Research Commission and Agricultural Research Council applied research studies over the last 20 years, as highly scientific and locally appropriate responses to sustainable development. Together with participative resource planning, and implementation modalities, RWH brings targeted technical solutions to the inexorable challenge of the agricultural-water deficit, while achieving catchment protection by reduced soil erosion, increased base flows and increased ground-water recharge, through the direct incentive of increased agricultural productivity (ibid.).

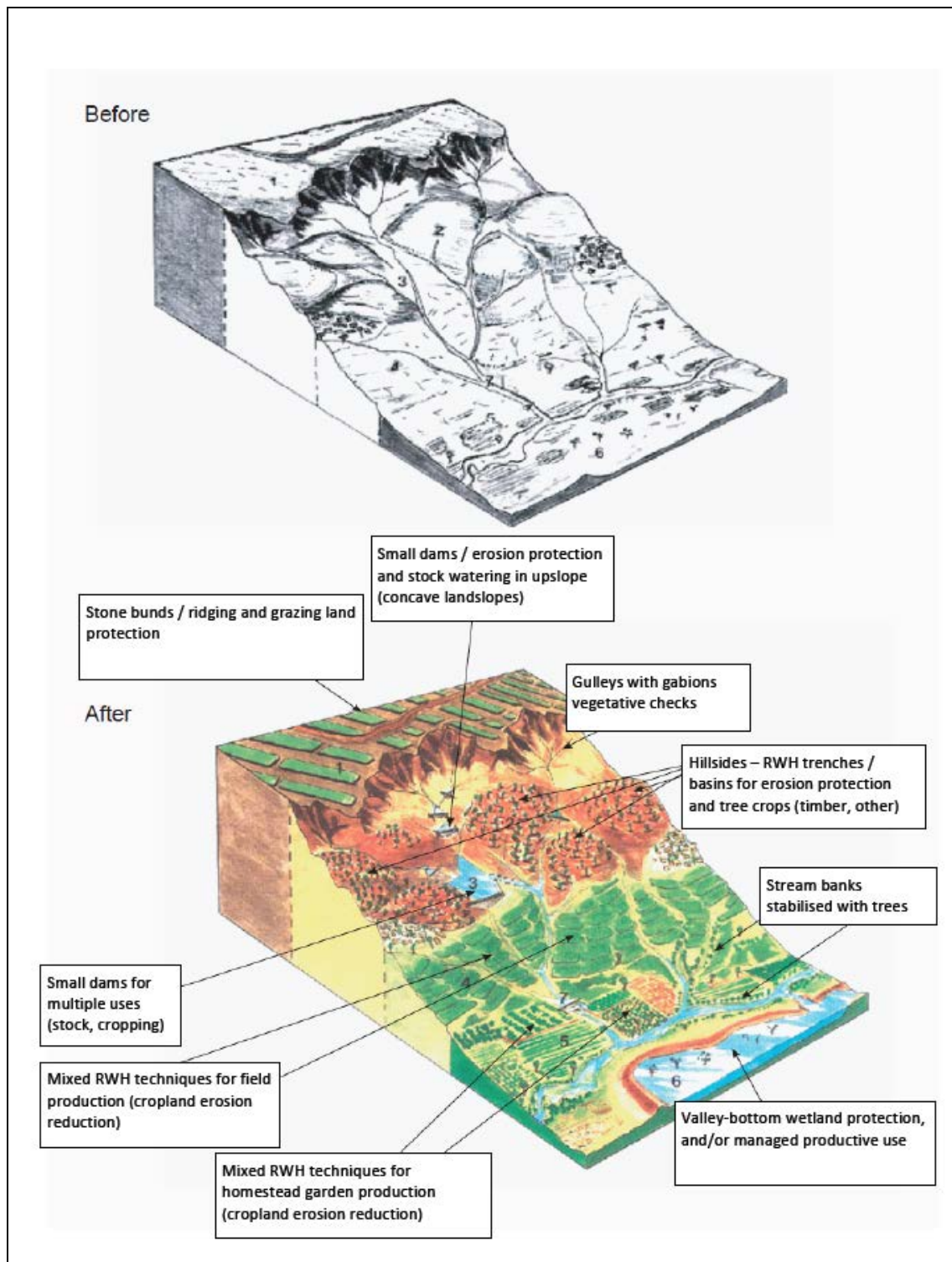


Figure 2.3: Integrated implementation of multiple RWH techniques at the watershed scale (from Desta et al., 2005)

The benefits associated with RWH development include:

1. Environmental/conservation (Denison et al., 2011): reduce soil erosion and thus siltation of the streams, rivers and estuaries from harvesting and managing runoff from roads and steep slopes; increase base-flow and thus stream and river recharge; and mitigate flood peaks.

2. Water supply-demand and municipal service delivery (ibid.): less pressure on municipal services to provide bulk water infrastructure, operation and maintenance costs; and release pressure on irrigated agriculture and on water resources.

3. Poverty reduction, economic development, improvement in general well-being and health, and gender equity (Kahinda et al., 2008): improved diet and food security from increased crop production; improved household economy from new income earning opportunities; provision of clean water, adequate sanitation and improved health; reduce vulnerability to drought, helping resource-poor farmers deal better with the risks involved in rain-fed agriculture; gender equity by reducing the burden on poor rural people, with less time spent in collecting water (particularly for women and children); and reduce vulnerability to drought, helping resource-poor farmers deal better with the risks involved in rain-fed agriculture.

However, RWH also has limitations. While successes and positive impacts are widespread and convincing, there is some need for caution around an over-optimistic expectation that RWH techniques can ensure drought-proofing (Lankford, 2009), as the fact remains that when there is no rain there is no runoff, and water stored in a soil-water reservoir can only go so far, particularly in lighter-textured soils and locations with a high aridity-index. RWH practices need to be planned with attention to the particular site conditions and cropping systems (Rockstrom, Hatibu, Oweis, & Wani, 2007; Denison et al., 2015). In agriculture development, a hybrid system with localised storage and supplementary irrigation, even in small amounts, becomes important in certain locations. Agricultural RWH interventions, combined with a range of sustainable agricultural practices (e.g. agroecology, climate-smart agriculture, etc.) implemented in a watershed framework, is an approach that has demonstrated positive results in Sub-Saharan Africa and other developing regions (Rowntree et al., 2018).

Watershed development programmes, and thus RWH methods, can also work with other water development approaches such as the multiple use system (MUS). MUS adopts a people-centred approach by trying to understand peoples' multiple water needs (e.g. productive, domestic, cultural, etc.) and their water resource availability as a starting point for providing water services to support their specific livelihood strategies (Denison et al., 2015). Here RWH infrastructure can be developed in order to store rainfall in tanks or reservoirs to support the multiple water needs in the household thus contributing towards improved well-being of the family.

Overall, the adoption of RWH methods and techniques could be considered within a watershed approach as an integral solution to enhance the resilience capacity of any catchment system. Application of RWH in this context will better equip the watershed system and agricultural sub-systems to adapt to climate change and continue to develop in order to meet attainable human development aspirations and well-being (Rowntree et al., 2018). In addition, ongoing reflexivity regarding the way RWH is applied and integrated into watershed activities allows for better ways of responding to emergent issues, mediated through participatory and co-developed watershed management plans, from rural communities to higher level governance structures (ibid.). Having said this, RWH systems and application of related methods in isolation, without the consideration of other critical elements in the farming enterprise, may not lead to the expected outcomes. These are outlined by Denison et al. (2015) as: i) learning through knowledge networks; ii) linking to commercial or local nursery; iii) institutional responses to land access and control; iv) financed and trained mechanisation contractors; v) value-chain mapping and optimisation for smallholders; and, as pointed out in the previous sections, vi) participative implementation planning at watershed scale. The research participants, as outlined in Chapter Seven, through the expansive learning process facilitated as part of this study, have identified and pursued the implementation of RWH practices as a capability pathway towards expansion of their agricultural activity.

2.5 Capacity development approaches: Knowledge and skills development for improved sustainable agricultural practice and Natural Resource Management (NRM)

This section provides a general perspective on how human capital or rather capacity,⁶ is widely considered as one of the critical inputs or assets in the realisation of sustainable livelihood strategies and natural resource management broadly (Department for International Development [DFID], 2001). Within this individualised framing, knowledge acquisition and skills development are both important aspects of human capacity development. Winterton et al. (2005) defined knowledge as something that is acquired and stored intellectually. It comes from learning or experience and is held in people's minds as a social resource that they can tap into. In this framing, knowledge is also viewed as an interaction between intelligence (capacity to learn) and situation (opportunity to learn). It includes underpinning theories and concepts, as well as tacit

⁶ In this study the term 'human capital' has been replaced by 'human capacity' as the latter encompasses a more humanised concept of a person's knowledge, skills and attributes rather than the welfarist ideology behind the use of 'capital' widely used in both the livelihoods framework and Capability Approach.

knowledge gained from experience. Skills, on the other hand, are a combination of useful practices that require considerable training to acquire (Winterton et al., 2005); equally, they may be acquired through practice, without formal training. Developing one's skills requires practice that will lead to competent, expert, rapid, and accurate performance. Problem analysis and solving, effective decision-making, mentoring, collaboration, team interaction, and team-work, for example, are all skills that are acquired through training or repeated practice. Therefore applied knowledge and skills constitute what is known as 'competencies' or the individual's 'know-how'. These can be assessed against the intended learning outcomes of, for instance, an agricultural training programme or workshop, to obtain insight into the advances that are required in a person's level of knowledge, skills and abilities to achieve successful crop farming.

This kind of education and skills development are often guided by *positivist* approaches, whereby knowledge (i.e. information about the world that is assumed to be objective and value-free) is transmitted to the learner. The context in which this knowledge was generated is deemed inconsequential, as it is the learner's own context. This perspective has led to what Freire (1996) calls the 'banker's model' of education, where facts are seen as knowledge, and an educated learner is one who has 'banked' a good amount of knowledge (Peters & Wals, 2013). Freire called for an alternative education approach that focuses on developing self-awareness and empowered individuals – a transformative process that happens between people, rather than a one-way flow from the informed to the ignorant (Freire, 1996). Turning knowledge into practical wisdom, which is integrated and applied, requires a process which is different to those conventionally applied, for instance, in agricultural skills development programs (Peters & Wals, 2013). In order to support effective learning, it is important to understand that learning is contextually embedded – physically, socially, historically and culturally. Burt and Berold (2012) drew on *constructivist* theories to explain that we learn through our interaction with others in response to changing situations. We also learn by applying what we know and responding to what happens. Situated learning theory, which builds on constructivist learning theory, emphasises that we learn through social practices, for example through managing our use of water resources in particular ways (Burt et al., 2014), and this requires a form of pedagogy in which the scientific concepts should connect with people's everyday knowledge so that the concepts make sense and can be internalised. This brings the processes of knowledge mediation to the fore by placing importance on the learner's context and perspective of the world (ibid.). Although the mediation of knowledge is not the core focus of this study, specific 'knowledge' or information was mediated in 'mini-cycle' workshops with the village-based women dominated

forum or farmers group so as to support them to advance their aspirational agricultural practice sustainably within their catchment area. The improvement of relevant knowledge and skills is a priority aspect that emerged as a result of the expansive learning intervention with which the research participants engaged. As a result, knowledge and skills development strategies were mapped out as capability pathways by the participants and taken to implementation (see Chapter Seven). These included the establishment of an accessible demonstration site to explore and learn rain water harvesting practices. In doing so, the researcher acted as a mediator of RWH knowledge which in turn assisted participants to improve their crop yield and runoff control mechanism (more details can be found in Chapter Eight).

Social and transformative learning, on the other hand, towards the expansion of activity and sustainable livelihoods capability (including ecological sustainability of the natural resource in their catchment) and women empowerment is at the heart of this study. Here the aim of learning is not only to 'know' and 'do', but also to be able to organise as, for example, a farmers' organisation or catchment management forum, in order to be more reflexive, adaptive and sustainable in a world where human actions have consequences that are far more complicated than we can foresee (Wals, quoted in Mukute, 2010). In other words, we live in a risk society where learning should be understood as a mediated social process that engages people in collective activities and social practices that make up our daily lives. Social learning as understood in NRM, thus promotes the following (Reed et al., 2010): changes in cognition amongst individuals; changes in social practices; and changes in the activities and actions of social units. It requires a reflexive capability or "self-transformative capacity" (Delanty, 2005, p. 120), which means having the ability for people to work together towards a common goal or object to develop their own capacity to reflect on, review and change in response to contextual factors and improved understanding of practice (SADC REEP, 2002). In this study, learning is understood as a process concerned with agency, both at the collective and at the individual level, to change the dominating power dynamics inhibiting women from expanding their capability towards a more sustainable way of living and their idea of a good life. This study goes beyond a human capital approach to an approach that is framed within a human capability perspective. In brief, from a human capital perspective, the role of education plays an important instrumental function in promoting economic expansion through the formation of knowledge, skills and competencies that contribute towards the augmentation of productive possibilities (e.g. education programmes towards agricultural production) (Saito, 2003, p. 24). On the other hand, a human capability approach to education and thus learning implies a much wider role for education. Here

education is viewed to go beyond an instrumental value to also an education that can directly enrich human life from a not so obvious productive or commodity value (Sen, 1999). It is concerned with 'human freedoms' (Lanzi, 2007), and it adopts a human development approach presenting a wider view of development that goes beyond a welfarist approach (explored further in the sections that follow). According to Lanzi (2007), the UNDP Capacity Development principles are consistent with the human capability approach as it makes reference to education as not only focused on improving human capital but also emphasises that education should foster empowering processes such as self respect, social visibility and other manifestations of empowerment and social change including change toward environment and sustainability (Lanzi, 2007, pp. 428-29). However, it is acknowledged that both approaches are reciprocally linked. On the one hand, human capital is concerned with economic production and further to this, a Capability Approach suggests that for people to 'flourish' education should go beyond such concerns and consider what else also influences the well-being and freedom of people and their agency. Therefore, education should be composed of both intrinsic as well as instrumental value (Saito, 2003, p. 24). Furthermore, Tikly and Barrett (2011) argued that human capital approaches do not provide a suitable framework for quality education as they mainly centre on their interest in promoting social welfare, and not on expanding capabilities and social justice as per a capability approach which considers quality education as

... an alternative rationale for education rooted in individual freedoms and education's role in fostering capabilities that encompasses but also stretches and challenges human capital and rights approaches. A focus on capabilities can also assist in helping us think through what it might mean to be educated in the global era and how this relates to notions of 'development'. It redefines quality education as one that develops whatever capabilities society and individuals have reason to value. (Tikly & Barrett, 2011, p. 12)

In addition, both approaches call for a different form of education assessment and evaluation (ibid.). From a human capital orientation, capabilities are appraised in terms of standardised assessments of cognitive learning as a measure of quality (ibid.). This is, according to Amartya Sen, the learning that promotes commodity value within the process of production, unlike the capabilities that expand people's freedom to lead the lives they have reason to value and to enhance the real choices they have in this respect (see Section 2.6.6).

From the discussion above it can be pointed out that this study explores an array of possibilities in the expansive learning process mediated with the Lutengele women farmers group. On the one hand, the study opens up opportunities for the mobilisation of a decision-making and agency network and, on the other hand, a focus on improved capability, in contrast to human capital,

towards sustainable agricultural production and NRM. The following section provides a brief introduction of the Capability Approach and the role that education and learning plays in human development and sustainability. This is from the point of view of framing quality education and its processes as a form of justice and empowerment (as an end in itself) of those involved in the learning endeavour.

2.6 Situating the study in the Capability Approach and the role of education and learning in human development, livelihoods and sustainability

2.6.1 A brief introduction to the Capability Approach

Traditionally the goal of development has been the maximisation of material well-being. The *welfarist* definition of poverty has traditionally related to deprivation of income and material assets rather than a multidimensional notion of poverty and well-being. Amartya Sen's view of development is perhaps one of the most holistic reinterpretations and the one adopted throughout this study. For the last three decades there has been a shift to a more holistic view of poverty moving away from an income and consumption notion to a *multidimensional* and *dynamic* view (Chant, 2007) influencing livelihoods approaches and thinking. Amartya Sen's⁷ interpretation of well-being is broader in term of a person's "capabilities" where poverty is viewed as a deprivation of capabilities or "freedoms" (Sen, 2001) rather than a deprivation of material well-being, in other words, "the substantive freedoms he or she enjoys to lead the kind of life he or she has reason to value" (Sen, 1999, p. 87). Here, the 'good life' is partly a life of genuine choice, and not one in which the person is forced into a particular life (Sen, 1985a, p. 70). What matters as the focus of this research is to what extent "people have the freedoms or valuable opportunities (capabilities) to lead the kind of lives they want to lead, to do what they want to do and be the person they want to be. Once they effectively have these substantive opportunities, they can choose those options they value most" (Robeyns, 2005a, p. 95). So capability it is about having options or freedoms, what Robeyns calls "opportunity sets". Therefore according to Robeyns (2005a, p. 101), capability is synonymous to 'capability set' or 'opportunity set' defined by a combination of functionings, either potential or achieved. In other words, capabilities are the opportunities that individuals have to realise different 'functionings' that they may have reason to value (Sen, 1999, 2009). Walker (2006) has described the difference between a capability and

⁷ The Capability Approach (CA) has been pioneered by Amartya Sen and developed into a framework used in research in order to analyse multidimensional poverty and wellbeing by typically using different methods and approaches in a concerted and conceptually coherent fashion (Alkire, 2005).

functioning:

A capability is a potential functioning: the list of functionings is endless. It might include *doings and beings* such as being well nourished, having shelter and access to clean water, being mobile, being well-educated, having paid work, being safe, being respected, taking part in discussions with your peers, and so on. The difference between a capability and functioning is like one between an opportunity to achieve and the actual achievement, between potential and outcome. (p. 165)

Central to Sen's understanding of capabilities is also the idea of agency freedom. 'Freedom' in the capability approach is understood as "a person's ability to get systematically what he or she would choose no matter who actually controls the lever of operation" (Sen in Alkire, 2005, p. 121). Capabilities thus imply more than simply skills in a narrow sense. They imply the freedom and opportunity for an individual to convert whatever resources he/she may have at her disposal into achievements or outcomes of different kinds, and so an understanding of the deeper ethical basis of justice and freedom in relation to development is needed (Tikly & Barrett, 2011, p. 7). This requires an understanding of power relations that affect access to, and control of, goods and services (including ecosystem services) (ECLAC, as cited in Chant, 2007) and the gender dynamics associated to this. Both individual and collective agency determine how differently people gain access to assets for the pursuit or advancement of livelihoods capabilities in a context mediated by power relations such as those generated by patriarchal gender relations in the family or household, as well as, for instance; regulatory frameworks and other structural factors or institutions (Chant, 2007).

In this context, the role of education in the capability approach holds both intrinsic and instrumental value (Unterhalter, 2003). Being well educated can be instrumentally important for the expansion of other capabilities (Robeyns, 2006, p. 78), for example in being able to choose in a more informed way (Sen, 1999, p. 242) or to use the senses to imagine, think and reason (Nussbaum, 2000, p. 78). Nussbaum also acknowledged that education is a critical component for the attainment of any basic capability which may include, but not exclusively, bodily health, bodily integrity, imagination and thought, the capacity to express emotions, practical reason, control over one's environment (ibid.). But being knowledgeable and having access to an education that allows a person to *flourish*⁸ would also mean to support capabilities of intrinsic

⁸ Aristotle's focus on human 'flourishing' includes activities which, when performed well, enable an organism to flourish in accordance with its nature. They are therefore activities connected to human well-being or flourishing, or 'activities of the soul'. So human flourishing at its highest level consisted in the pursuit of activities in accordance with those standards of reasoning that he called higher level of human flourishing creating a mind-body dualism (Elliott, 2007, pp. 146-147).

value (Sen, 1999; Alkire, 2002; Robeyns, 2006). So, the intrinsic value of education, for instance, may include the support to the empowerment of marginalised communities to organise themselves and overcome inequalities (Unterhalter, 2009) through their agency. Additionally, both Sen (1999) and Nussbaum (2000) agreed on the intrinsic value of education as an end in itself.

In terms of this study, taking a capability approach to education and learning orientations and methodologies, such as the generative and transformative outcome envisaged out of expansive learning and formative intervention research, would define the purpose of the process itself (*beings* and *doings*) as well as the need for conceptual tools and methods for unlocking agency in order to re-conceptualise the object of the primary activity people are engaging with, in this case small-scale agricultural activity in the Lutengele villages. An overview of education and learning in the Capability Approach is fleshed out in Section 2.6.3 below. However, this is an evolving area that needs further theoretical and conceptual depth as indicated in the following section, Section 2.6.2. This study aims to contribute to the emerging theoretical field within the ambit of the Capability Approach and associated transformative pedagogies⁹.

2.6.2 The Capability Approach, education and learning: An opportunity for research

Education and learning theory were not one of the first disciplines that made their way into the Capability Approach. Sen, among others, paid attention to other disciplines in the advancement of the work and despite Sen's recognition in 1992 that the expansion of people's capabilities could be fostered through education (Sen, 1992), this field stills remains undertheorised (Leßmann, 2009). The bulk of the work on capability has been within a developmental context but there are signs that its importance for the field of education is being more widely recognised (Hinchcliffe & Terzi, 2009; Hart, 2012), particularly since early 2000s when the UNESCO 'Education for All' report suggested that education policies should be judged by how people's capabilities are enhanced or not (UNESCO, 2002, pp. 32-33). Since then, there has been growing international interest from people working in diverse sectors of formal, informal and non-formal education building on the work of Walker and Saito (Hinchcliffe & Terzi, 2009). In 2003, Saito made the connection between the capability approach and education as a mutually enhancing relationship where education was regarded as a "fundamental resource enabling people and structuring the effective opportunities of people to live a life they have reason to

⁹ Further linkages to the existing capabilities literature on women learning through rural development projects shall be made to expand the contributions to this field of work.

choose and value” (Otto & Ziegler, 2006, p. 269); it was clear that further exploration of education as a key factor in the capability approach needed to be undertaken. Here, the Capability Approach provided a conceptual framework that allowed for a re-examination of education theory to processes that consider the promotion of social justice in education and thus it was a framework for re-conceptualising and evaluating education quality (Otto & Ziegler, 2006, p. 270). Building on this notion, in 2007 Walker looked into education settings and education inequalities and suggested that the capability approach rendered a powerful framework for the formation of education processes and education settings through which an individual can explore her own conception of what it is a person has reason to value and that education is part of expanding the capacity to make valued choices in other spheres of life. This requires an evaluation of education that goes beyond outcome measures, such as numbers enrolled, test scores, or income to an evaluation system that considers the overall purpose of education in relation to human well-being (Walker, 2007). This education approach is of particular relevance to women empowerment as it provides an opportunity to raise the problems faced in their lives whilst conceptualising the aim of education and learning itself, and also because this process develops critical thinking and a form of self-expression that allows an evocation of self and apprehension of others (Nussbaum, 2006).

Despite the interest in education in the Capability Approach, this is still a developing area of theory and practice for further research. In particular, it is recognised that a theory of learning is missing (Unterhalter, 2001; Hart, 2012; Kronlid & Lotz-Sisitka, 2014). Hinchcliffe and Terzi (2009, p. 388), for instance, proposed that further research was needed on the prospects of developing a capabilities-driven pedagogy of education that could be applied in both formal and informal settings in either schools or communities as an alternative to the performativity-driven concepts of skills and competence outlined in Section 2.5. Nowadays this is still an area under development, particularly for outside formal education including education within the field of environment and sustainability, providing an opportunity to investigate the suitability of the change-oriented and social learning pedagogies, such as expansive learning, supported in this study.

2.6.3 Understanding the role of education in the Capability Approach: A basic capability, a conversion factor and a capability input

Building on the section above, Section 2.6.1, the text that follows expands the notion of education and learning within the Capability Approach as threefold: education as a basic capability;

education as a conversion factor; and education as a capability input. The relevance of these distinctions to my study is based on the purpose of improving the research participants' 'informal' education opportunities through their participation in a collective learning and knowledge-skills generating process and thus enhancing their ability to turn available resources into functionings. The intention is also to consider how to design and mediate the learning process itself, including relevant mediating tools.

Education as a basic capability

Education is considered a basic or fundamental capability; it is also considered to be foundational to other capabilities both present and future. Simply articulated, education can lead to other capabilities such as participation, choice and well-being of oneself as well as others (Watts, 2009). Education, through the promotion of reflection, understanding, knowledge generation and skills development, can advance other complex capabilities, including the formulation of one's capabilities in the sense of defining the valued 'beings and doings' (and aspirations) an individual has reason to value; education can also open up options and opportunities for the attainment of such capabilities and future ones (Terzi, as cited in Otto & Ziegler, 2006). The level of education needed to support chosen capabilities would thereafter be context dependent as opposed to standard 'one-fits-all' education programmes (Watts, 2009). Walker (2007) alerted us to the fact that as much as education can enhance capabilities, it can also sometimes reduce capabilities (e.g. former Bantu education system in South Africa).

Education as a conversion factor

The Capability Approach pays special attention to the notion of 'conversion factors' as personal, institutional and environmental aspects that can potentially enable or disable groups and individuals to turn the resources available to their disposal into valued functionings or capabilities. A *personal* conversion factor may include a person's literacy level, competences, etc. (human capacity) that might influence how a person is able to convert the water and land at their disposal into crops and food. This process or transition is influenced by *socio-cultural* and *institutional* conversion factors such as gender roles, power relations and hierarchies that may empower or disempower an individual to realise the envisaged outcomes or capability (e.g. being able to provide food for the family). In this sense, education through transformative learning approaches may unlock the agency needed to navigate through such power dynamics. At the same time the natural *environment* can also influence whether enough resources, such as water, may be sufficiently available for individuals to make the available land productive. In this case, education

through relevant knowledge, skills and competencies may play an important role in individuals' ability to navigate and adapt to these conditions and expand agricultural capability. In summary, the converting capabilities are highly diverse among people (Farvaque & Bonvin as cited in Otto & Ziegler, 2006) and thus, it is acknowledged that education can be an enabling conversion factor. For instance, a literate individual is in a better position to convert written information into valuable resources for decision-making (Gale & Molla, 2015) in the same way that knowledge and human capital in general terms is also a conversion factor. Knowledge, according to Duarte (2015, pp. 465-466) can be used to achieve material wealth, social status and may also allow the exercise of critical thinking about oneself and others, self-empowerment and self respect, to name a few (thus both instrumentally and intrinsically), but is required also to develop critical capabilities to change and adapt in our current world (Lanzi, 2001, pp. 429-430). Human capacity, therefore, can enlarge human capabilities, not simply in terms of skills, but also in terms of life-plan options and aspirations.

Capability input

Capability inputs refer to material, procedural, institutional and attitudinal resources (Otto & Ziegler, 2006). Education may therefore, be considered a capability input (Robeyns, 2006) in the form of, for example, arranging a supportive environment for learning with adequate resources and facilitators. Considering that the Capability Approach recognises human diversity and humans' different valued 'beings and doings', it should be recognised that the same inputs may not generate the same outcomes in each individual. Therefore, the value of such inputs would depend on how each individual is able to convert these inputs into capabilities (Robeyns, 2006) and so it is important to consider which are the most important inputs and how they should be adapted (e.g. curricular) to expand capabilities (Robeyns, 2005a, p. 5).

In summary, based on the above, education may not only be interpreted as a capability, but also as 'capability input' and as 'personal conversion factor'. Education might be the means to expand capabilities, a means to convert assets into capabilities and it might also be considered as a capability itself. This is because education has both intrinsic and instrumental value (Otto & Ziegler, 2006, p. 274).

With a focus on learning, Kronlid and Lotz-Sisitka (2014) argued that education, rather than a capability, is an institutional conversion factor due to the fact that education is by definition an institutional process that at best facilitates a learning process. Learning, on the other hand, is the capability as well as a functioning, as learning enables a person, for instance, to comprehend

and critically assess new information, reflect and adapt to new situations. In the context of this study, learning should focus on developing new transformative relations with the human and non-human other in order to adapt and reduce vulnerability (ibid.). In this way, education should be considered the place in which one learns how to relate to the world and learning can be the capability to reflect and adapt and an opportunity to exercise the achievement of aspirations. Capability development requires a new kind of learning as outlined in Section 2.6.4.

2.6.4 Education, learning and transformation: Pedagogical implications to the expansion of capabilities

Education and learning can be potentially transformative. As alluded to above, “education has a special place in the capability approach because of its transformative potential to enhance capabilities” (Watts, 2009, pp. 426-427) in various ways. In the Capability Approach, education plays an important role in the advancement of critical capabilities to expand human well-being and development being, among others, the ability to choose the ‘good life’ that is of value, to engage in democratic deliberations and participate towards such a way of life and living. This is through critical engagements and reflections with others that, for instance, may define how access to natural resources available in a catchment should be managed sustainably to advance local livelihoods, and ultimately through the exercise of agency and acting upon these valued decisions and related capabilities.

Additionally, within the capabilities framing, it is broadly recognised that the aim of education should be therefore to nurture a ‘capable human being’ who will be able to speak, to act, to tell, to challenge social norms, etc. in order to transform the activity towards the capability he or she considers of value (Hoveid & Hoveid, 2009). It is Important to understand the kind of learning necessary for these processes to materialise.

To reiterate, in the capability approach a starting point in an education process is to provide the opportunity for people to choose what is important to them as the aim of the education and learning process, in other words, the object of activity that through participatory engagements people learn and work towards; as mentioned in the Section 2.6.1 above, this is said to be reflected in a person’s freedoms. Nussbaum (2000) pointed out that choosing is a special functioning and that it is in itself a capability of intrinsic value as well as an end in its own right. These capabilities are ‘architectonic’ in nature as they are innate to every human being and may require training and education in order to choose well and act well (Nussbaum, 2000, p. 84). It is

also the role of education to create a space for the 'meta-capability' of reflection. This meta-capability refers to the ability and opportunity to "form a conception of the good" (Nussbaum, 2000, p. 79) and thus is the aim of the learning process through reflection and reflexive processes. Unterhalter (2009) echoed the work of Sen, Saito and Nussbaum in emphasising that education can develop people's reflective capability so that those involved in this process can engage in debate and public reasoning and critically think and reflect on how to attain the valued 'way of life' at hand. In this way, the skills to reflect critically to make informed choices about how to live a better life now and in the future need to be nurtured in the education and learning opportunities afforded (Walker, 2006).

Education with the aim of expanding people's capabilities should therefore be based on 'liberal' conceptions of education and learning (Garnett, 2009); in other words "to create a learning situation so that the doer can arrive at what the doer considers to be the best solution to the problem in view of his or her own ends and capabilities ... and thus to foster and enable ownership on the part of subsequent doers" (Ellerman as cited in Garnett, 2009, p. 445). Garnett (2009), by referring to the work of Saito (2003) and others, emphasised that this is a kind of education that makes people autonomous. By 'autonomous' Garnett referred to the fact that learners should enjoy the freedom to think and to learn and thus education and learning should promote a learner-centred approach supported with a safe space to do so and with a diversity of pedagogical approaches, tools and opportunities to learn. Garnett also echoed Walker (2006) in that education should support human flourishing so to enhance the autonomy of the learner. Nussbaum (2006) stated that through education, critical capacities can be nurtured such as the ability to participate in democratic processes, both as informed participants and as equal citizens; thus education would require developing the capacity to reason logically and democracy needs citizens who can think for themselves rather than simply deferring to authority. There is a need to know how to engage in dialogue and deliberation in the first place. This freedom is of particular urgency for women, who are often encouraged to be passive followers of tradition.

Based on the special importance placed on choosing one kind of life over another and the internal and external influences that can shape the ability to choose, a theory of learning that has resonated with the Capability Approach and referred to by various scholars, is based on Dewey's theory of learning (Leßmann, 2009, p. 454). According to Leßmann (2009, p.454), Dewey's theory of learning lends itself to integration in the Capability Approach by focusing on "learning

to choose” as the link between both theories with its main focus on ‘experience’ as the basis to education.

Learning is therefore an active process in that how one views the world is as a result of past experiences and the activity of constructing the world involves observation and judgment, in other words; it requires power to select and order means to carry chosen ends into operation, these are not necessarily desires but purposeful ends that involve observation of the actual circumstances, recollection of previous similar experiences and, finally, judgment of the consequences of the particular desire. This means executing the freedom of intelligence by pausing, by reflecting on her impulse, by thinking of the consequences of her desire, and by finally framing a purpose that directs her activities in the learning process. This process is ultimately social; it involves contact and communication within the situation in which the interaction takes place. Education is a cooperative task and the educator is a guide who facilitates a participation of those involved in sharing their experiences and taking decisions or exercising choice [shaped by both a combination of internal and external factors]. (Leßmann, 2009, p. 454)

In support of the above, education within a capability framing should support the space for “capability for voice” to be effective (Otto & Ziegler, 2006, p. 283) and so Uyan-Semerici (2007, p. 204) paid attention to learning as the engagement in a dialogical process that enables the articulation of capabilities and desires, particularly for those who may be from more marginalised societies; learning should create the kind of new knowledge and values that are crucial for a more democratic understanding. The Capability Approach draws on participatory approaches in deliberative democratic processes as an opportunity to make sound decisions but also as a platform to advance social justice, equity and transformation (see Section 2.6.5).

Ultimately, learning is not only about the enhancement of ‘choosing’ and ‘voicing’ but also aims to nurture learners’ agency in order make opportunities for learners to achieve valuable outcomes (Walker, 2005). This links to the agency freedom aspect advocated in the Capability Approach and it is echoed by Gale and Molla, (2015, pp. 820-821) who emphasised that education supports agency freedom of the individual in as much as it has the potential to turn resources and opportunities into valuable and valued achievements and purpose goals for themselves. In educational terms, people should be able to take control of their learning so as to make the learning process and content relevant to their valued ‘beings and doings’ (ibid.). Capability-informed curricula, materials and pedagogical practices would encourage students to interrogate assumptions about human well-being, critically reflect on their aspirations, and question structural inequalities involving power, privilege and material resources in society (Wood & Deprez, 2012). It requires educational agency from the participants engaged in the educational and learning process to influence and shape this process (Walker & Unterhalter, 2007, p.6). Thus, there is a need for re-framing and to erase the boundaries between the

facilitator of learning and the learners to include the latter to shape the passage and support materials of such processes (Tikly & Barrett, 2011).

Sen also considered education as a democratic freedom (or empowerment) stating that “education in the Capability Approach is an unqualified good for human development freedom” (Walker, 2006, p. 168). By supporting the expansion of new capabilities to individuals, new options and skills are also modified, and hence their positions, relations and representation within groups, networks and communities are too.

Over and above Dewey’s theory of learning, other scholars such as Walker found the ideas of Paulo Freire particularly helpful in articulating a best-suited theory of learning to the Capability Approach. Freire’s critical pedagogy encompasses a philosophy of human development (or ‘humanising pedagogy’) – a pedagogy that fosters critical thinking and active learning through dialogue and engagements with the messy realities of life. Furthermore, critical pedagogy pays attention to history, power and participation in education settings. It is based on critical thinking that interrogates the assumptions about life and power relations and raises questions about the moral relevance of our actions by which it positions us to engender transformation. For Freire, education ought to be ‘the practice of freedom’ that through praxis, individuals realise their full humanity.

Praxis is the reflexive relationship of theory and practice which involves acting with others to transform the world. It is the act of reflectively constructing and reconstructing the social (and educational) world. Knowledge therefore cannot simply be transmitted or written on to blank slates, but develops through the involvement of learner in invention and reinvention, and through curious, imaginative and hopeful inquiry. (Freire, 1970, 1985 in Walker 2009, p. 3).

Such a socially embedded transformation process is connected to the newly developed human capabilities (Lanzi, 2007, p. 429) aimed at in an education and learning process, such as the one herewith investigated in this study. Lanzi (2007, pp.429-430), like Freire, pointed out that education enlarges moral capabilities, or M-caps, and hence offers the opportunity to reframe the individual’s view on, for instance; his or her relation and view of the world. In the context of this study, this means a moral claim for environmentally sustainable production, which does not trade off natural capital with larger stock of physical assets, as well as providing purpose to change the dominant social roles such as women’s roles and responsibilities within a patriarchal society or culture.

2.6.5 Deliberative democracy as a learning mediated process for dialogue, collaboration and collective responsibility for “Choosing and Acting”

The previous sections alluded to the democratic deliberations advocated by Sen's Capability Approach and the selection of capabilities underpinning valued goals and aspirations by those people whose human development is at issue (Sen, 1999, pp. 31-32). These participatory processes provide an opportunity for groups of people to voice and select valued capabilities (Clark, 2006, pp. 2-3) and also to reflect upon these through public reasoning and clarification of social values (Sen, 2004, pp.77-80) and ultimately find purpose to exercise agency towards their realisation. Thus, to exercise deliberative democracy is a capability in itself. Fishkin (2010) acknowledged that the public is immensely capable if given the chance and a realistic basis for thinking that its voice matters. In *When the People Speak*, Fishkin (2010, p.11) pointed out that

... in a deliberative democracy everyone's views are considered equally under good conditions for the participants to arrive at their views. The process is deliberative in that it provides informative and mutually respectful discussion in which people consider the issue on its merits. The process is democratic in that it requires the equal counting of everyone's view.

It is essentially a collective activity with a specific purpose; a joint social activity, embedded in the social action of dialogue; a process of public reason (Owen, 2001) and value judgment (Alkire, 2005, p. 119). It requires cooperation and so the reasons for cooperation need to be sufficiently convincing for participants to continue to cooperate (Owen, 2001). As a cooperative project, deliberative democratic processes includes a diversity of activities such as formulating and achieving collective goals, making decisions, solving conflicts of interest and problems together and more (ibid.). It requires commitment to consider alternative solutions and the perspectives held by all members of a heterogeneous community need to be given voice (Sanders, 1997). It should exclude no one from participating in the discussion in a quest for “commonality”, leaving space, as well, for acknowledging conflicts and differences (ibid.). In a sense, it is ‘dialogue with a particular goal’, which for Owen (2001) requires a well-educated public, whereas for Biesta (2011), involves the kind of citizen which relates to the conception of “the ignorant citizen”. This is a citizen who does not particularly align to the predominant existing political order but someone who, in a sense, is driven by a desire for a particular democratic order of human togetherness, refusing to be pinned down in a pre-determined civic identity (ibid.). Thus, from an education and learning point of view, it is not a simple matter of intellectual or human capital acquisition but a process for citizens becoming aware of their dignity and powers as responsible agents (Sanders, 1997) to break away from the social injustices found in the

world. It calls, according to Healy (2011), for a deliberative democracy template that goes beyond the idea of reappropriation as advocated by Young (1994) who proposed that those people participating in such processes should be able to understand one another because we are able to see ourselves reflected in the other people and find that they see themselves reflected in us. Deliberative democratic processes should enlarge transformative learning in order to achieve the envisaged outcomes defined from such dialogical processes which also better accounts for the pluralistic and inclusive intent promoted by democratic principles known as transformative dialogue (Healy, 2011, p. 303). Healy described this type of dialogue as one of respectful hearing and equal dialogue partners, where disagreement and difference contribute to the emergence of creative solutions to complex problems fuelling the dialectical learning process that a genuine engagement with tensions actually calls for (Healy, 2011, pp. 303-304).

These mediated processes require a kind relationality that promotes true collaboration and participation towards learning that expands change and transformation. This type of learning and these mediated spaces draw on pedagogies that promote critical thinking and transformation, and they are explored in this study.

To conclude, an increasing number of political theorists argue that under the deliberative model, a democratic decision-making process is both the means and the end of collective action. On the one hand, deliberative democracy is not about determining which preferences, aspirations and capabilities have the greater numerical support from the group members, but it is also about determining which aspirations should be pursued collectively and thus turn into capabilities. Biesta (2011) highlighted that deliberative democracy should move away from an aggregative model towards one that acknowledges that democracy is never simply about the aggregation of individual preferences but needs to engage with questions about the collective interest and the common good. It requires the translation and transformation of private troubles into public issues as the key functions of the public sphere. Here reflexivity is one of the conditions that enables individuals to be capable of action and judgment (Disch, 2011). Most importantly, it is about the critical and reflexive competence that emerges from such a process. It is a process that may also advance people's 'capability to aspire' (Appadurai, 2004) as valued achievements unfold and constraints and power dynamics are dealt with through a process of collaboration and collective agency as well as through dealing with the adaptation problem exposed above (see Chapter Three).

In order to understand what these mediated spaces look like from a Capability Approach perspective that draws on deliberative democracy theoretical insights, this section tried to highlight some of these insights that may complement an expansive learning exercise in a small-scale community development initiative such as the one involved in this study. Moreover, Sen indicated that he was not sure about how these processes take place from the selection of capabilities and aspirations to their realisation and evaluation of freedoms from both an opportunity aspect as well as an agency or process aspect (power dynamics). In this case study, transformative learning pedagogies may shed light on Sen's idea of a democratic deliberative process both theoretically, methodological and conceptually with meditational tools based on Cultural Historical Activity Theory.

2.6.6 Evaluation of capabilities in educational and learning contexts

Within a Capability Approach framing, the evaluation of education and learning outcomes should go beyond statistical indicators such as level of knowledge and key skills acquired (Robeyns, 2006, p. 48) to the evaluation of human 'flourishing', the associated conversion factors as well as individual and group capabilities (Tikly & Barrett, 2011). In line with the idea of a pedagogy of inclusion, as mentioned in Section 2.6.1 above; the Capability Approach offers a more comprehensive approach to the usual utilitarian "key skills conceptions" in mainstream education (Walker, 2005). From a Capability Approach perspective, the indicators to assess and evaluate against, ought to be developed through participative methodologies (Tikly & Barrett, 2011) in support of collectively identifying the 'valued beings and doings' philosophy advocated by Sen. However, Watts (2009) warned us that the issue of assessment of education and learning found in the Capability Approach with regard to adaptive preference and human diversity in choosing valued capabilities and aspirations may be atrophied and adapted to the conditions of living a person is subjected to, and that well-being may not be hold the same characteristics from one person to another (more details in Chapter Three). Capability-informed education policies and practices, including supporting pedagogical approaches, should go beyond the evaluation of capabilities and constraints, to also include an understanding of the learners' circumstances of preference formation and the implication for sets of valued and valuable goals or capabilities (Gale & Molla, 2015, p. 824). Evaluation of education and learning, therefore, should focus on how and to what extent learning experiences provide students or learners with real opportunities to set value and achievable goals (*ibid.*). Watts (2009) suggested that capability analysis needs to also include the subtleties of adaptation distinguishing adaptation to the means of achieving well-being (e.g. navigational capacity), and adaptation to its ends.

Lanzi (2007, p. 427) suggested that as capabilities interact with one another for the achievement of related functionings, in evaluations of capabilities we need to deal with human ends and that a precise understanding on how the political and cultural definition of local principles of justice, social norms and roles or institution is required to understand how the aforementioned capabilities have been influenced; in other words, we need to consider the structural constraints affecting the individual or collective. This was captured by Otto and Ziegler (2006, p. 274) as:

A capability approach to education and literacy is concerned with evaluating processes of learning and acquisition as being embedded in broader social, cultural, economic and policy arrangements, while taking individual aspirations into account rather than dictating social benchmarks. These relational and embedded processes are evaluated in the space of those valued 'beings and doings' that Nussbaum and Sen use to call the 'capabilities' of individual agents.

In conclusion, evaluating education and learning processes in the realm of a capability perspective would not only require a focus on educational outcomes within a human capital perspective but it would require a focus on wider outcomes such as empowerment and 'freedoms'. In other words, the relevant achievement of functionings need to be considered as well as the not so obvious and unobservable capabilities and eventually, as mentioned above, the social, political and institutional factors which may influence the concerning capabilities and whether these have become adapted to their circumstances. The Capability Approach provides a comprehensive framework for exploring these in relation to normative, not simply empirical discussion, as it provides a social justice framework for how education can contribute to the expansion and equality of capabilities in other spheres of life (Walker, 2007). Therefore appropriate methods to scrutinise individual experiences as well as outcomes are needed. Walker (2005) suggested that as researchers, participatory action research processes would enable us to involve all those affected by the practice in developing and evaluating the development of valued capabilities in and through education. By engaging in action and deliberative reflection together, both education researchers and learners may be able to clarify and deepen the understanding of the complexity of the practice under scrutiny and so contribute to developing the practice as the research unfolds. This view is echoed by Tikly and Barrett (2011) who suggested that participative research methodologies would assist for fairness and to do capability development better. However, these type of research approaches are often criticised as they may reproduce the inequalities and power imbalances they seek to overcome as a result of overlooking the way in which participants are selected, how the conversations are structured, the tone of the process being researched and more (Kindon et al., 2009; Alkire, 2006 as cited in Pelenc et al., 2015). Having said this, the Capability Approach tries to address these

limitations as it considers participants the driving force for change in the development process and that a variety of tools and techniques are already available and well researched (Frediani, 2006). According to Hinchliffe (2009, pp.405-406), these tools need to support the concept of 'strong evaluation' as opposed to 'weak evaluation' which is only concerned with the evaluation of the best means to attain pre-given ends, whereas strong evaluation seeks to shape and modify existing ends. In sum, Sen (1999, p.242) in *Development as Freedom* confirmed that

... it is the need of people to discover the best way of coping with the actual problems of living in a changing human environment that shapes their evaluative reasoning and judgment. In this context it is important that the options open to them are rationally assessed through participation in public discussion.

2.7 Conclusion

This chapter has situated the smallholder agricultural livelihoods from rural Eastern Cape into a wider social-ecological context by adopting a catchment or watershed framing for analysis, planning and implementation of novel solutions and pathways that would align to both human and non-human well-being as well as acknowledging their mutually reinforced relationships. The chapter also discussed the role of women in rural contexts to advance agricultural productivity, economic development, their own well-being and empowerment as well as the well-being of their families and communities at large. The chapter has also highlighted the benefits that the Capability Approach may bring to the design and orientation of rural development programmes and gender equity as well as the shift needed in contemporary agricultural skills development initiatives to bring about transformation and sustainable change within this context and these activities. The reorientation of non-formal skills programmes with rural communities calls for transformative pedagogies that take into account people's cognitive development, their values and priorities, their participatory capability to deliberate on these priorities, their ability to organise themselves and make decisions, but most importantly, the urge for such programmes to foster collective agency to change the course of their activities and livelihoods to a more positive one despite the inhibiting structural forces found in these contexts, both externally and internally.

The following chapter (Chapter Three) expands theoretical underpinnings of the Capability Approach in relation to the role of aspirations and associated capabilities in driving learning and development in this study.

CHAPTER THREE: ASPIRATIONS AND ASSOCIATED CAPABILITIES IN EDUCATION, LEARNING AND DEVELOPMENT

3.1 Introduction

Chapter Three is dedicated to foregrounding the key theoretical underpinnings found in the Capability Approach literature that shed light on understanding the connection between capabilities and aspirations. Here aspirations are considered as potential forerunners to capability expansion (Hart, 2016) in terms of unlocking agency towards achieving the desired associated ‘aspirational’ capabilities or functionings as well as developing unforeseen valued capabilities and potential higher aspirations. In doing so, this chapter focuses on the foundational theoretical ideas posed by the aspirations and Capability Approach literature in order to further inform the empirical investigation in understanding how aspirations and capabilities may be accounted for in learning theories for transformation, such as expansive learning in interventionist or formative research (Engeström & Sannino, 2010) and vice versa. This chapter sets the scene for research *Goal 2c: Describe and develop a synthesis ‘process model’ that illuminates or illustrates the relationship between expansive learning and the capability approach;* by surfacing potential ‘touch’ points for investigating their interactions.

The following sections present, first of all, why aspirations are important in supporting and enhancing human development and well-being in the context of sustainable agricultural livelihoods and catchment management taking Sen’s theoretical framework as the theoretical backbone (Section 3.2). Section 3.3 provides insights into the meaning of aspirations and their potential role in learning and development and how aspirations are deeply influenced by contextual conditions, their generationality, humanly embodiment (e.g. women’s aspirations ‘ruled’ by local norms and beliefs) and all together moulding peoples’ ‘capacity to aspire’ (Appadurai, 2007) (see Section 3.4). Furthermore, Section 3.5 elucidates whether aspirations are voiced collectively or individually and their relationship to collective capability as beacons to engage in action with others who share similar aspirations and activity. Finally, the chapter concludes with Section 3.6 by emphasising the role of agency and empowerment in the achievement of capabilities, aspirations and ultimately ‘freedoms’.

In addition, it should be acknowledged that work on aspirations with already vulnerable communities may pose the risk of exacerbating frustrations (Conradie, 2013) and even

deepening the sense of injustice individuals and communities are exposed to, as these aspirations may not be attained (Ibid.). However, there is a general agreement in the literature that a focus on aspirations may allow people to reflect on their own situation and dreams through engaging in a capability selection process. Also peoples' reflections on aspirations may surface the contradictions or challenges that are inhibiting the aspirations from being realised and lead to people engaging in action to overcome these constraints in order to achieve their aspirational goals (ibid.). This view on 'working on aspirations' makes the case for Change Laboratory workshops in expansive learning processes as a method that emerges from identified contradictions as sources of learning and transformative agency leading to societal change and development. It is for this purpose that this study sets itself to explore and analyse the role of aspirations in formative research towards capability expansion as described in Chapters Seven and Eight.

In summary, the following sections intend to reveal the theoretical claims with regard to aspirations and capabilities in order to understand the role that these may play in transformative learning processes such as expansive learning and formative intervention research relevant to the study: how expansive learning assists to turn productive resources into functionings and thus foster women empowerment in rural Eastern Cape (South Africa) in the context of sustainability and natural resource practices within a catchment.

3.2 Aspirations and their role in human development, well-being and environmental sustainability

To start with, it is important to situate this study within the argument held in the Capability Approach in defining 'what matters', in other words, what is the 'good life' that people have substantive reasons to value over another? (Sen, 1999). Development programmes might have the aim of, for instance, expanding rural women capabilities towards improved sustainable agricultural practices, well-being and empowerment; establishing what the 'good life' means to those involved becomes a critical consideration in the design, planning, implementation and evaluation of any development intervention, including a learning-development intervention such as this one. As noted in Chapter Two, Amartya Sen has argued that the selection of capabilities depend on personal value judgments that lead to surfacing material valued capabilities as well as others with intrinsic value (Clark, 2006, p. 5) and it might be that those with intrinsic value drive agency and change. These may be capabilities that go beyond a welfarist prioritisation to include other aspects that make up people's well-being. Sarah White (2009, p. 5) pointed out

that well-being goes beyond the *material* aspect to include other key dimensions such as the *relational* dimension and the *subjective* dimension. She defined the material aspect of well-being as comprising assets, welfare and standards of living, whereas the relational aspect should include both social relations in accessing public goods (e.g. water resources), as well as the human relations (e.g. attitudes to life and personal relationships). Furthermore, the subjective dimension to well-being has two aspects: on the one hand, people's perceptions of their (material, social and human) positions, and on the other hand, cultural values, ideologies and beliefs (ibid.). Chapter Two (Section 2.2) made reference to the interrelationship between ecosystems and the services they provide to human development and well-being. Basic capabilities are dependent on the natural environment and so these environmental resources (e.g. clean water) contribute to well-being in the same way as other material resources may do (Holland, 2008). Ecological systems provide the basic materials needed to humans, such as food; they also provide feed for livestock and agricultural products on which humans depend. More generally, ecological systems form soil; cycle nutrients, such as oxygen, water, and nitrogen; and carry out primary production (e.g. photosynthesis), which are basic conditions of life on this planet. Additionally, ecosystems also afford cultural services shaping the societal identities and relations with one another (Millennium Assessment Panel, 2003 as cited in Holland, 2008). Generally, the Capability Approach lacks theoretical depth on the multiple ways in which these and other environmental resources and ecological systems, cycles, and process, are indispensable to enabling all basic capabilities central to living a life of dignity as a human being (Holland, 2008, p. 323) and indispensability in this study is to consider sustainable ecological capability as a capability that brings the ecological dimension of livelihoods capability and human well-being and sustainable development. This view is shared by Pelenc, Bazile and Ceruti (2013) who also highlighted the shortcoming of the Capability Approach with regard to ecological sustainability and the role that the environment plays in not only providing people with opportunities (Sen, 2009) but also its crucial dimension in human well-being; there is room for this theoretical field to consider the intrinsic value of Nature and the contribution to the conception of the 'good life'. Pelenc et al. (2013, p. 91) suggested that human development should be reformulated within a sustainability lens proposing development that

... guarantees both present and future generations and improvement of their capabilities that takes into account the active contribution of each human being to habitat conservation and the right of each to benefit from essential ecosystem services, through the aspiration of equity on the one hand – by the intra-generational distribution of these capabilities – and their transmission across generations on the other.

The current conceptualisation of the Capability Approach, therefore, makes it difficult to assess well-being in a fully sustainable way (Pelenc & Dubois, 2011 as cited in Pelenc et al., 2013).

In broad terms, the Capability Approach presents us with the notion of development or achievement of 'freedoms' (Sen, 1999) as not only expanding new opportunities for well-being to become available (and materialised) but also with the idea that agency has been exercised (Alkire, 2008a); in other words, are there freedoms in terms of the opportunity aspect that the formative [research] intervention may have provided (advanced capabilities), as well as the process aspect that such intervention may have nurtured (learning and agency)? In relation to the above discussion and focus of this study, the lack of ecosystem services may reduce the opportunity aspect, while collective agency may open up opportunities for those resources to become available thus being able to expand people's freedoms (e.g. water scarcity influencing livelihoods opportunities yet through collaborative action and agency, the construction of local water storage or reservoirs would compensate and expand opportunity to livelihoods and poverty reduction). Clark (2006, p. 4) reminded us that the capability approach is an approach that "focuses on human functionings and the capability to achieve valuable functionings". As such, it is primarily used to determine vital *functionings* (or capabilities) and social states through the articulation of associated dimensions or goals and consequently establishing priorities that are feasible and instrumental to the realisation of these goals or aspirations (Robeyns, 2005a) such as increasing agriculture productivity, generating income or feeding a family. In other words, the capability approach looks into the practice: this is what people are able to do with the resources available (e.g. access to water, land, knowledge and skills) and it takes into account the extent the person is free to choose these functionings.

This study therefore considers individual livelihood and well-being aspirations as well as the collective aspirations in the form of a vision for the 'common good', in other words, the natural resources and ecosystems services within a catchment in which these livelihoods and peoples' well-being depend on and how these would contribute to the 'good life'. Ecosystem services can be considered to be a common good. This implies that management of these ecosystems, or natural resources, is not managed by individuals acting alone but instead, requires collective action and collective capability (Pelenc et al., 2013). How collective agency arises, and what role expansive learning plays in the management of natural resources in the Lutengele villages is discussed in Chapters Seven and Eight.

Aspirations for the 'good life', either collective, individual or relational, have the potential to play an 'activating' role in development and learning interventions in, either i) the capability-selecting process, or ii) the agency-unlocking role. Conradie and Robeyns (2013, p. 564) elaborated on these two roles as follows:

- The *capability-selecting* role of aspirations is the role in which voicing of aspirations of the 'good life' plays in the choice of which capabilities matter in the development and learning intervention under consideration. As mentioned earlier, the capability approach argues that capabilities which 'we have reason to value' should be the object of concern and that the selection process of these capabilities can be done in different ways (Alkire, 2008a; Robeyns, 2005b) – e.g. an expansive learning process is a potential process for such deliberation. Although aspirations may be condemned to adverse circumstance and unjust social structures, the formulation in open public discussion processes may influence the aspiration to go up (or lower). Conradie and Robeyns (2013, p. 562) also alluded to the challenge of ever coming up with a 'true' aspiration in a point in time as aspirations arise in a process of *becoming*:

A process of becoming aware of one's aspirations, in which people are in a reflexive way invited to reflect on and express the aspirations they have, reconsider them, and possibly revise them, and both lead to the birth of new aspirations or to the discovery of latent aspirations' and therefore aspirations may not only be selected in terms of valued 'beings and doings' but also as 'becomings'. (Comim, 2003 as cited in Conradie & Robeyns, 2013)

- The *agency-unlocking* role of aspirations refers to the thinking, talking and reflecting upon such aspirations, particularly when it is done in a group as these discussions and mental processes may create a supportive and encouraging environment. Such public deliberation spaces and engagements may motivate people to use their latent agency to make changes in their lives, and so expand their capabilities towards attaining their aspirations. Conradie and Robeyns (2013, p. 565) continued by emphasising that this may happen when reflection is linked to action; however, they noted that the mere act of voicing aspirations does not automatically unlock agency. Here they focused on how latent agency (agency which is present but of which the agent may not be fully aware or insufficiently motivated to act upon) can be mobilised through these processes and directly or indirectly lead to capability-enhancing freedoms.

Conradie (2013, p. 194) concluded her study on aspirations with a small group of women from a township in Cape Town by stating that "when a person is able to use her aspirations in such a

way that she is able to achieve the functionings she wishes to have, she has used her agency to realise the capabilities available to her in order to enable her to live the life she most deeply wants to live regardless of the constraints found in the realisation of capabilities". Robeyns (2010) identified such constraints as historical, structural, cultural, and also personal, and thus linking these constraints to agency. She suggested that it would be essential that these constraints or obstacles are assessed as comprehensibly as possible as they are an inherent part of the space in which capabilities can be realised, and in fact, might be the reason why aspiration cannot be realised. When the circumstances are not very favourable, aspirations after all, can act as "beacons of hope in trouble times" (Nussbaum, 2016, p. 302). It must also be noted, as indicated previously, that work on aspirations may not be enough to unlock the agency necessary for their realisation and that when trying to support peoples' aspirations, these may need to be complemented by material-interventions (Flehtner, 2017). This is a tension that formative intervention researchers working with poor communities may face and not be able to overcome with the resources at their disposal.

Although this body of literature acknowledges that reflections, discussions and other group interactions are needed to raise valued capabilities and aspirations, the literature does not tell us how these processes really happen. There is a need to understand the processes (mental, cognitive, meditational, etc.) required as to how these abstract ideas (aspirations) turn into capabilities (materialised or concrete); hence the relevance of analysing expansive learning as a suitable theory to explore in this context. Before going into this discussion in the following chapters (Chapters Four to Nine), it is important to have a clearer idea of what aspirations really mean and entail (key features) and how these are developed and influenced by contextual drivers (see Section 3.3 below).

3.3 Aspirations as manifestations of embodied valued goals

Different interpretations of aspirations are found in the literature. The definition used for this study is provided by Caroline Hart who has done extensive work on aspirations within the Capability Approach theoretical framing. Her definition resonates well with this study as she argued that aspirations are "future-oriented [goals], driven by conscious and unconscious motivations and they are indicative of an individual or group's commitment towards a particular trajectory or end point" (Hart, 2016, p. 326). Aspirations are targets a person sets out to pursue (Elster, 1983 as cited in Flehtner, 2017). A person's life dreams or idea of a 'good life' and can vary from culture to culture (Appadurai, 2004, pp.67-68). Conradie and Robeyns (2013, p. 563) made the

distinction between aspirations and preferences with the former being “goals one wants to reach in the future”, whereas the latter refers to “desires or wants in the present”. Arjun Appadurai (2004, p. 68) made the point that aspirations “form part of wider ethical and metaphysical ideas which derive from larger cultural norms” and that aspirations deal with both the material needs and non-material hopes and dreams. He suggested that there are three normative levels that affect aspirations. According to Appadurai (2004, pp.67-68), these are:

- i. Within the idea of aspirations, material ‘needs’ and ‘wants’ represent *immediate*, visible inventory making smaller units of a higher order dream. These wants may be choices concerning access to a piece of land, agricultural implements, etc. These usually appear when people are asked to itemise their needs for, for instance, a more productive agricultural activity (instrumental value);
- ii. The next level are the *intermediate norms* which may not be expressed but nevertheless structure the particular wants through local ideas about, for instance, honourable and dishonourable forms of work and how these vary for men and women, arranged marriages, etc.; and
- iii. *Higher order normative contexts* which comprise a larger map of ideas and beliefs concerning matters such as ancestral beliefs, value of material good versus social relations to name a few.

In order to situate the above ethical and normative levels within the concept of aspiration-agency relationship, Sen (2009) suggested that aspirations and capabilities can be either considered of prudential value (instrumental in nature) or intrinsic value, with the latter the kind of aspirations that have a higher level of agency potential. For instance, the way in which humans, like all other organisms, transform nature and adapt to the ecosystems they themselves construct is based on societal choices and values. These are defined as the collective elaboration of Nature and embedded in people’s values, knowledge, beliefs, experiences and practices (Buijs et al., 2011 as cited in Pelenc et al., 2013) which may influence the kind of intrinsic aspirations individuals and communities envisage for how natural resources should be managed and used.

Typically, aspirations tend to be goals for which people believe there is a possibility for fulfilment and that a degree of effort is required to achieve such goals and so, certain ‘investments’ may be required and willingness to do so is latent (Elster, 1983 as cited in Flechtner, 2017). In other words, aspirations are not vague hopes for the future (Flechtner, 2017); they require effort and a degree of agency. Personal values and norms can highly energise agency towards these achievements (Conradie, 2013).

Furthermore, Hart (2016) noted further aspects with regard to the notion of aspirations. She suggested that aspirations are dynamic, they may be latent and can surface suddenly or emerge slowly. However, aspirations may also be about keeping the status quo remaining as it is. Furthermore, they may be short, medium or long-term as well as have different importance to the individual. They are often connected to other aspirations held by the individual as well as others. In other words, aspirations can be relational as well as good or bad.

In summary, promoting learning and development through work on aspirations and related capabilities, a full multi-dimensional view of aspirations is needed. This means that a deep understanding of the combination of influences that precede and shape aspirations and their relationship to capabilities and functioning should be surfaced so as to enable mechanisms and processes towards their actualisation or achievement (Hart, 2016, p. 325). Ray (2003 as cited in Hart, 2016) developed the notion of a multidimensional 'aspirational window' suggesting that an "individual draws her aspiration from the lives, achievements, or ideas of those who exist in her or his aspiration window". This relates to the notion of the adaptive preference argument presented in Section 3.4.1 below which suggests that the dynamic nature of aspirations is directly linked to how people adapt their aspirations within the influence that the context presents (Conradie & Robeyns, 2013, p. 562). The following Section 3.4 elaborates on the relationship between aspirations and context.

3.4 'Capacity to aspire' as a socio-cultural terrain of power relations

Chapter Two presented how social and cultural norms pose an important mediational role in enabling or constraining women's livelihood capability expansion and well-being from the point of view of how culture influences division of labour (including access to productive resources, distribution of gains, etc.) and opportunities (e.g. access to education) in a given context as well as from a power dynamic perspective in terms of voice, status and other vulnerabilities. Rao and Walton (2004, p. 4), when exploring the meaning of culture from a capability approach perspective indicate that culture constitutes not only part of what a 'good life' is but also how life is valued, making culture about the relationships among individuals within groups, among groups, and between ideas and perspectives. They continued by indicating that culture is concerned with identity, aspiration, symbolic exchange, coordination, and structures and practices that serve relational ends, such as ethnicity, ritual, heritage, norms, meanings, and beliefs. To use Sen's framework, culture is part of the set of capabilities that people have – the constraints, technologies, and framing devices that condition how decisions are made and

coordinated across different actors. They can be exploitative, exclusionary, and conflictual – resulting in what Sen has called ‘relational deprivations’ (Sen, 2000 as cited in Rao & Walton, 2004).

Building on the above, the previous Section 3.3 briefly stipulated that ontologically aspirations are context dependent; that is, according to Appadurai (2004, p. 67), aspirations need to be understood by how the social and cultural context in which a person belongs also influences and shapes aspirations and by their own agency in this process. Ray (2003, as cited in Hart, 2016) confirmed Appadurai’s view that in as much as individual aspirations are born in a social context, they do not exist in a vacuum and as such the socio-cultural and historical terrain in which aspirations are embedded and changing is complex. Appadurai also reminded us that aspirations are always formed ‘in the thick of life’, which means in collective contexts and in the space where cultural values and norms have an influencing effect and they are reshaped (Appadurai, 2004, p. 67) and that social and cultural identities are constructed by ourselves and by others (Berger & Luckman, 1966; Giddens, 1991; Searle, 1995; Hacking, 1999; Castells, 2004 as all cited in Conradie, 2013). And so, culture should not be seen as static and synonymous with set traditions and ‘pastness’; culture instead undertakes complex transitions between traditional ways of life and ever-changing global economies and lifestyles. Culture, in the words of Appadurai (2004, p. 84), is “a dialogue between aspirations and sedimented traditions” and by working on aspirations and the achievement of associated capabilities, people are negotiating a new future. In doing so, one could also say that there is a direct relationship between culture and economic behaviour (or productive activity) that can either be empowering or disempowering, particularly for women as it is examined in this study. Here, culture becomes the cornerstone for change-orientated or transformative learning to take place as it may enable or disenable a change from current practice to better practice.

Bourdieu’s work on ‘habitus’ helps us to understand how culture can affect poverty and the reproduction of inequalities by linking habitus to aspiration formation in the individual. Habitus is defined as “a set of durable principles such as practices, beliefs, taboos, rules, etc. that provide a group of individuals with a sense of group identity and a consequent feeling of security and belonging” (Bourdieu in Rao & Walton, 2004, pp.14-15). He indicated that habitus

...tends to shape individual action so that existing opportunity structures are perpetuated. Chances of success or failure are internalized and then transformed into individual aspirations or expectations; these are then externalized into actions

that tend to reproduce the objective structure of life changes. (Rao & Walton, 2004, pp.14-15)

In other words, the choice of aspirations might be influenced to varying degrees by the 'habitus' of an individual. Bourdieu further explained that habitus operates below the level of calculation and consciousness and that the conditions of existence influence the formation of habitus which are manifested in the agent's tastes, practices and works and constitute a particular lifestyle (Bourdieu, 2010 as cited in Hart, 2016); these habitus mould a person's dispositions that in turn generate meaningful practices and meaning-making perceptions and the need for transformational learning strategies in order to get out of business as usual.

In his earlier work, Bourdieu (1979 as cited in Flechtner, 2017) illustrated how humans from an earlier age adopt or internalise belief systems, normative worldviews, social norms, values, and expectations from their social environments. Children also develop (beliefs about) their abilities, talents and preferences in interaction with their families and peers. All these influence their aspirations, learning and development (resonating with Vygotsky's work CHAT work as described in Chapter Four). However, according to Flechtner (2017, p. 520) aspirations continuously adapt to experiences and living conditions, being either positive or negative, and so in the stance of this study, expansive learning may have a nurturing effect regarding the mediation of more just and fair aspirations or capacity to aspire.

The following section, Section 3.4.1, presents problematic issues linked to adaptation of aspirations, particularly by the poor, and the need to develop a *capacity to aspire*.

3.4.1 Adapting aspirations to adverse conditions: The poverty trap syndrome

An important aspect of this study is to understand how the women concerned have developed their aspirations, whether personal or collective, and how such aspirations have adapted to their own cultural-justice circumstances shaped by informal institutional arrangements and structural make-up. In doing so, the intention is not to be judgmental about what people have chosen to do, be and become, but rather to examine how these choices are perpetuated by the so-called adaptive preference problem to their development (Sen, 1985a, 1992, 2002; Nussbaum, 2000; Clark & Qizilbash, 2008, Qizilbash, 2009 all as cited in Conradie, 2013). Therefore, it is worthwhile to take account of the origins of what could be a low aspiration, or rather what Felchtner labelled a 'prudent aspiration' which is in essence developed as a process in which

people are aware of the numerous constraints encountered in their lives which makes them believe what is feasible to accomplish. Once these constraints are dealt with, people might then become used to thinking that more ambitious aspirations could be attained (Flehtner, 2017, p. 520). At the same time, Flehtner was also concerned with how a life in poverty may also impact a person's aspirational goals and activities to not necessarily be about serving their own interests, even though their resources and capacities may allow them to do so. Instead, a woman, for example, may choose to rather continue performing the house chores to maintain a level of peacefulness within the family over undertaking paid work that may be more fulfilling and enriching to herself as her identity may be so closely tied to the interest of the household or the family (Iversen, 2003, p. 99). A life in poverty may cause psychological poverty traps and consequently low investment and effort in reaching her full potential.

Since people are usually not aware of how their aspirations have influenced their effort levels and achievements, they misinterpreted their achievement as an indicator of their potential, and continue aspiring to goals that fall short of their full potential. This is known as an aspiration trap. (Flehtner, 2017, pp.517-18).

Additionally, in gender-based violence studies where the victims of prolonged domestic violence and exploitation accept their predicament without question or complaints as part of 'a women's lot in life' also has a negative effect on the aspirational capacity of these women (Nussbaum 2000, pp.12–113). Furthermore, White (2009) raised a concern regarding how people adapt their aspirations to their circumstances in the sense of what seems to be possible, and thus develop a coping mechanism in order to deal with 'entrenched deprivation' and so feel satisfied with less and therefore resilience inequalities may be perpetuated. White (2009) also suggested that instead of people's aspirations spiralling down, the focus of development interventions should be in developing abilities upwards, in other words, fostering 'compensating abilities'.

In sum, aspirations are not only shaped and adapted 'downwards' to the readily apparent constraining factors such as material deprivation, and perhaps local beliefs on what an individual can do and be, but also to other not so apparent factors such as fear of failure and avoiding frustration (Clark, 2009). An individual might set their aspirations in relation to what they know they can achieve or they might set aspirations more ambitiously to strive for a way of being and doing that they are not sure of realising (Hart, 2016). In developmental terms, mediating a participatory and reflexive process with people 'on what is possible' is a healthy exercise (Clark, 2009, p. 30) particularly in terms of processes that strive to develop capabilities 'upwards' rather than 'downwards' – beacons of hope. However, Nussbaum (2016) argued that feasibility should

not determine aspirations but aspirations should drive actions and so people should not be intimidated by feasibility but we should rather set high goals to motivate individuals.

By the same token, acceptance or contentment can replace aspirations. In this case, contentment is in itself an aspiration goal. There may be some areas of life where one is content but at other times or in other areas, the individual aspires to change. There may be reasons why an individual opts for 'contentment' even though not all of these are necessarily positive. It may be an adapted preference due to little perceived prospects of change. People may reach what Hart (2016) termed an 'aspiration plateau' where they have no further aspirations; this could be perhaps due to significant accomplishments, past failure, ill health or other priorities (Hart, 2016). So if true contentment in a just environment is prevailing, then there may not be a need to engage in a process such as expansive learning. However; if a person is content with but not critical about unjust circumstances, then such processes may assist to surface and critically map a new future.

The above discussion points towards acknowledging that 'adaptation' may pose a serious problem (see Section 2.6.6 on education and learning assessments and evaluations) for the use of aspirations as a tool or stimuli for engaging in expansive learning and transformation. A person may not have aspirations at all or may even be overambitious and so such processes may therefore not be considered worthy by those participating. Co-constructing new knowledge and practices towards the achievement of aspirations with others could be considered a pointless and time-consuming exercise. However, the change-oriented learning process and interventions may help people to feel empowered in order to get out of their current 'plateau'. According to Conradie and Robeyns (2013, p. 566), the best aspirations to work from are those that are neither adapted aspirations nor overambitious, but rather something in between:

In this way, we need to reason about which capabilities we value and complement the process of aspiration-voicing with additional actions or interventions that challenge people to ask whether their aspirations have been limited by adverse circumstances in which they live, or the unjust or oppressive structures of their society... [by] complementing the process of voicing and reflecting upon one's aspirations with other activities that raise awareness about the social structures in society, and how these may lead to belief that certain things are not possible, when in fact, they are. (Conradie & Robeyns, 2013, pp. 566-567)

Thus, the best solution, as suggested by Sen (1985b, p. 14), to this problem of adaptive preference is to engage in a thorough public debate and the scrutinising of one's aspirations and preferences (see Section 2.6.5 on deliberative democracy). However, he warned us that a

person who is ill-fed, undernourished, unsheltered and ill can still be high up on the scale of happiness or desire-fulfilment if he or she has learned to have realistic desires and to take pleasure in small mercies; Sen warned against simply equating welfare with more ambitious aspirations. Sen (1992, p.1) coined the term 'diverse humanity' to argue that the same thing is not necessarily good for everybody. Similarly, low aspirations are not automatically detrimental to well-being.

3.4.2 Nurturing the 'capacity to aspire' as a quest for people to challenge their 'terms of recognition' and develop capability

Overall the literature on aspirations seems to imply that interventions on aspirations have the potential to increase capability expansion and well-being [and sustainability]. However, it is not yet fully clear exactly how these interventions look in order to do this nor what type or level of aspiration should be 'manipulated' nor what kind of tools should be developed to assess the effect of such intervention on turning aspirations into functioning or capabilities (Flehtner, 2017). A possible approach may be to nurture people's 'capacity to aspire'. Appadurai's (2004, p. 69) 'capacity to aspire' concept reflects the need for people to expand their aspiration horizon no matter what their circumstances are, however, recognising that those better off (in terms of power, dignity and material resources) may be in better position to navigate between a wide range of ends and means for the 'good life' than those in worse positions, such as the poor and marginalised. In this way, interventions should promote people's navigational capacity in a way that potential opportunities are maximised for a brighter future. Appadurai (2004, p. 66) acknowledged that:

We need to strengthen the capacity of the poor to exercise 'voice', to debate, contest, and oppose vital directions for collective social life and they wish, not only because this is virtually a definition of inclusion and participation in a democracy. But there is a stronger reason for strengthening the capacity for voice among the poor. It is the only way in which the poor might find locally plausible ways to alter what I am calling the *terms of recognition* in any particular cultural regime.

In other words, there is a call for a change in the conditions and constraints under which the poor negotiate with the very norms that frame their social lives (Appadurai, 2004), and the power these bring. Appadurai argued that the capacity to aspire itself needs to be developed in people who are used to managing in very harsh environments. Asking them about their dreams and then beginning to work out how at least some of them might be achieved may in itself be significant. Where an individual is able to demonstrate the functioning of aspiring through the expression of one or more aspirations, it may mean there is capacity to aspire. However, it does not necessarily

mean that the full range of the individual's capacity to aspire and constrain or that the oppressive roots of aspiration may be readily explicit (Appadurai, 2004) and therefore, this may open doors to increased capabilities.

The capacity to aspire is clearly linked to Sen's capabilities inasmuch that:

The capacity to aspire provides an ethical horizon within which more concrete capabilities can be given meaning, substance, and sustainability. Conversely, the exercise and nurture of these capabilities verifies and authorizes the capacity to aspire and moves away from wishful thinking to thoughtful wishing. Freedom, the anchoring good in Sen's approach to capabilities and development, has no lasting meaning apart from a collective, dense and supple horizon of hopes and wants. Absent such a horizon, freedom descends to choice, rational or otherwise, informed or not. (Appadurai, 2004, p. 82)

What does it mean to nurture the capacity to aspire? Some general principles may involve: i) identifying efforts to change the terms of recognition, ii) local teaching and learning, iii) voice, iv) identifying the cultural map of aspirations and assess trade-offs and, according to Rao and Walton (2004), v) not only influencing aspiration but also coordinating collective action in a way in which power and agency work within a society. Power relations, as mentioned earlier, positively or negatively mould people's perceptions of normalcy and acceptability of what a person can aspire to or not (Hart, 2016), and so, to aspire to be, do and become, including the intrinsic relation to Nature.

This leads us to the next section which explores the relationship between individual and collective aspirations and capabilities manifested in a relational dimension, as well as from a 'collectiveness' point of view, the benefits of people exercising collective agency in order to change power dynamics and capabilities that otherwise would not have been attainable by an individual alone.

3.5 The relational and collective dimensions of capability expansion towards a common good and well-being aspiration

This section provides the conceptual grounds underpinning the relational aspects found between individual and collective aspirations in a quest to understand the motive or aspiration behind why people engage in collective activity and volitional agency and thus in willingness to participate in a step-wise expansive learning process and actions such as the process outlined in this study. Additionally, the outcomes of such a process are explored as being related to capability expansion at the collective (e.g. catchment management practices and sustainability) and

individual level (e.g. women empowerment and small-scale agricultural practices) through the idea of concept formation and transformative agency in expansive learning change laboratories which are explained in Chapters Seven and Eight.

In previous sections, various authors introduced the concept of aspirations as situated in socio-cultural contexts and thus being shaped by circumstances (Appadurai and others) with individual aspirations being linked to the well-being of the community as this influences an individual's well-being (White, 2009). The focus has clearly been about individual aspirations (and associated capabilities) and about how these may become energisers of latent agency when reflections and deliberations take place among a group of people (Conradie, 2013). However, not enough attention has been paid to the notion of a collective life dream or 'common good or the 'good life' as a collective aspiration to unlock collective action and collective capabilities. In other words, the role of *collectiveness* to engage in social or work activity is important. A similar gap is presented when exploring the collective-individual capability literature. The articulation between individual and collective level capability, in the same way as aspirations, is not fully fleshed out in the literature. Therefore the next section explores in more detail how the Capability Approach literature considers collective capability in order to understand the relationship between collective and individual capability expansion and thus the capacity of an individual to aspire. Of interest to this study is to examine the relationship between individual and collective aspirations in the exercising or manifestations of their respective capabilities, this relationship between individual and collective capability analysis being supported by the formative learning and development intervention.

3.5.1 Individual and collective capability argument

According to Zimmermann (2018), the Capability Approach predominantly promotes the notion of individual level capability and does not adequately take into account the articulation between individual and collective levels. The 'individualistic' nature of the Capability Approach as promoted by Sen and his followers has been heavily criticised. Although it is acknowledged that Sen (2007) recognised the existence of collective capabilities, and their relations to an overall social context, his approach rejects the possibility of well-being assessment at the collective level as it is difficult to measure the impact of collective capabilities on individual's well-being and thus the concept of collective agency is not taken sufficiently seriously. In essence, this aspect is widely known as the *ethical individualism* argument that considers the individual as the main unit of moral concern. *Ontological individualism*, on the other hand, makes a claim about the nature

of human beings, about the way they live their lives and about their relation to society (Robeyns, 2005a, pp. 108-109). Sen acknowledged that capabilities also included a concern for others, which further developed into recognising the social influences on individual freedoms (Sen, 1999) and ultimately that individuals are agents embedded within the fabric of social life (Sen, 2002). Nevertheless, like Sen, Alkire (2008b), Volkert (2013) and others have also critiqued the concept of collective capability on the basis that collective capabilities:

- might not be valued by some individuals (Alkire, 2008b);
- might not be equally distributed among the group and not all members are able to use these new capabilities equally effectively (Alkire, 2008b; Volkert, 2013). However, although they may not be of equal distribution, each group member should enjoy a wider range of 'choices' as a result of the involvement in collective action (Ibrahim, 2006); and
- can sometimes be harmful to others (Alkire, 2008b; Volkert, 2013) and they may be used to even harm future generations (Leßmann & Rauschmayer, 2013) depending on the type of capabilities aimed at by the group itself (Ibrahim, 2013).

Likewise, aspirations can be expressed individually or collectively (Hart, 2016) and these two may be relational. However, when individuals deliberate and reflect on their aspirations and supporting capabilities in public, such as in a group like the one in this study (women farmers group), Flechtner (2017, p. 518) was concerned that some people may be afraid to voice their aspirations in public and therefore their voices may not be heard and so, a collective aspiration may not encompass the whole collective's wishes. Aspirations may even be in conflict with other people's views of the 'good life' and that the collective aspiration may not be good and could even polarise (Hart, 2016).

Contrary to the above, Uyan-Semerci (2007, p. 205) indicated that although there should be recognition of separateness as an ethical necessity for the human development approach, there should also be acknowledgement with regard to how well-being depends heavily on other people's well-being, as well as on the common good (Warner, 2018) or healthy ecosystems; therefore, people's perception of well-being and agency is often constructed in relational terms. Tripp (2010) also argued that collective capabilities may be necessary to change power struggles and thus an individual's capabilities framing should also include a collective capabilities rationale. Other advocates who have attempted to address the notion of collective agency and collective capability within the Capability Approach framework include Evans (2002), Ibrahim (2006 and 2013), Sharrieff (2018), Biggeri (2020), Leßmann (2020, 2011), Deveaux (2021), to name a few.

The concept of collective aspiration, capabilities and capability is of importance in this study in order to foreground that some aspirations (as well as capabilities) can be articulated either individually or collectively. However, some aspirations can only be achieved collectively, particularly aspirations that strive for social change and the manipulation of power dynamics (transgression), including the quest for environmental sustainability through 'communal' practices. In other words, group aspirations enable change to occur where individuals alone would falter (Hart, 2016) and such group interaction generates capabilities that can enhance the fulfilment of each member in a way that could not have been achieved without the interaction (Rauschmayer et al. as cited in Pelenc et al., 2015). The Capability Approach needs to consider the role of collectiveness in affecting individual capabilities (Stewart, 2005, p.185) as well as the role of collectiveness as the necessary link between individual and collective capabilities (Evans, 2002, p. 56) as it is the case for sustainability of natural resources within a catchment (see Section 3.5.4 below).

3.5.2 'Collective capability' definition and link to individual capability

Various definitions of collective capability can be found in the literature. The definitions provide a conceptual frame when analysing expansive learning actions and volitional agency; these can be defined within a Capability Approach framing. Collective capabilities can be analysed through a relational (social-context) lenses, a collectiveness (agency) lens; as well as the relationship between the two (e.g. people transforming the environment – people being transformed by the environment). Different characteristics and definitions of collective capability are presented in this section.

First, collective capabilities allow an interacting group of people to carry out actions and achieve states of being that would be impossible if individuals acted alone; they may be specific to a particular group of individuals and they should be obtained through participating in a group (Panet & Duray-Soundron 2008 as cited Pelenc et al., 2015). Furthermore, Ibrahim (2009) suggested that collective capabilities should be generated through the free and voluntary involvement of individuals in collective action. Collective capabilities are defined by Ibrahim (2006, p. 398):

The newly generated functioning bundles a person obtains by virtue of his/her engagement in a collectivity that help her/him achieve the life he/she has reason to value. There are mainly two criteria. Collective capabilities are only present through a process of collective action and the collectivity at large – and not simply a single individual – can benefit from these newly generated capabilities. There are the new choices that the individual alone would neither have nor be able to achieve unless he/she joins a collectivity.

Despite the fact that Sen was not advocating for assessing human development based on the achievement of collective capability, he also presented a useful definition of collective capabilities as those which are only available to, and exercisable by, individual human agents working together as part of a group or collective (Sen, 2002).

Importantly, the main difference between individual and collective capabilities is in the *process* through which these capabilities come about and their potential of benefiting the collectivity at large. According to Ibrahim (2006, p. 404), these are:

... newly generated capabilities attained by virtue of their engagements in a collective action or their membership in a social network that helps them achieve the lives they value. They are not simply the sum (or average) of individual capabilities, but rather new capabilities that the individual alone would neither have not been able to achieve, if he/she did not join a collectivity. Collective capabilities affect individual choices in two ways: first, they affect the individual's perception of the good (i.e. what constitutes a 'valuable functioning' for him/her) and, secondly, determine his/her ability to achieve these functionings.

3.5.3 Groups and capabilities (people learning and working together on a shared object)

The benefits of participating in group activities in light of developing collective capabilities are various. A summary of these benefits is presented below:

1. *Shared values of the good life*: Groups or collectiveness provide an arena for formulating shared values, preferences (Evans, 2002; Ibrahim, 2006) and aspirations. Groups, according to Stewart (2005), are not only a mechanism for enhancing individual capabilities but are also a critical source of influence over preferences and values helping to define which capabilities individuals value, as well as behaviour.
2. *Instrumentally and intrinsically important*: Groups can also instrumentally affect how resources are mobilised or shared. Groups can further provide a sense of status and are self-respect and therefore can be considered of intrinsic value (Alkire, 2002, p. 267).
3. *Affect individuals positively or negatively*: Depending on the results of collective action (failure or success), there may be a positive or negative impact on the collective agency and to a certain extent on the agency of the individual members (Penlec et al., 2015, p. 236; Stewart, 2005).
4. *Social capital as a conversion factor*: Groups, either formal or informal, may act as a conversion factor or lubricant for expansion of collective capabilities, particularly for self-help, with self-empowering groups finding power in the social capital constituted (Ibrahim, 2006, p. 409). Therefore, the notion of groups and the role they play in human life and well-being is of importance in the analysis of capabilities (Stewart, 2005, p.185).

5. *Enabling or constraining*: Panet and Duray-Soundron (2008 as cited in Pelenc et al., 2015) argued that for individuals participating in a group, their involvement can result in a source of new freedoms but is also as a source of constraints or obligations.
6. *A capability in itself*: The mere act of forming a group is a capability in itself and therefore support towards forming such groups is an important aspect of advancing human development (Stewart, 2005, pp.198-199). In contexts categorised as poor or deprived, forming a group may be defined by how people relate to one another as they may be subjected to a highly centralised government structure which evokes the promotion of a dependency syndrome; internal conflict in communities, lack of education, etc. (Ibrahim, 2006, p. 408). However, despite these limitations on group formation, Freire (1970, as cited in Ibrahim, 2006) advocated that the only hope for the [rural] poor comes through a greater self-awareness that leads to recognition of their inherent collective strengths as referred to in Chapter Two.

However, it is important to acknowledge that genuine groups are those that the human capabilities, aspirations, purpose and/or vision promoted reconciles with the individual's self-interest with the pursuit of a common social order (Olson, 1965 as cited in Ibrahim, 2006, p. 407). In terms of what characterises a group, Stewart (2005) suggested that groups can be temporary, more or less defined, as well as lifelong (such as families). Examples of effective groups can include producer associations, saving groups, common resource management, etc. Self-help initiatives, for instance, are defined as any informal income-generating or social activity initiated by a materially deprived community to achieve permanent improvements in their individual and communal well-being. They encourage grassroots participation and local governance (Ibrahim, 2006, p. 399) which to some extent applies to the informal growers network or group involved in this study.

3.5.4 Collective capability and individual capability for ecological sustainability and natural resource management

The previous Section 3.5.3 referred to the collective (relational) dimension of well-being and its influence on subjective well-being. Here collective well-being is understood as the Common Good, in this case, a healthy social-ecological system, which in itself supports various livelihood activities. Small-scale farming is the activity investigated in this study with its own set of individual aspirations of agricultural productivity and motives. So, in this study, the Common Good or the collective view of a good life sets the meta horizon or anchor towards social-ecological

sustainability, as defined by the participants themselves, including the kind of sustainability principles and practices for this context (Chapter Seven).

For the Capability Approach to become a suitable framework for sustainability assessment, as discussed in Ecological Economics and Human Development fields, understanding how individual capability and collective capability are linked is crucial as these are mutually reinforcing (Pelenc et al., 2015) for the reasons outlined throughout this chapter. This is supported by a range of scholars including Ballet et al. (2011, 2013); Rauschmayer and Leßmann (2011); Martins (2011); Polishchuk and Rauschmayer (2012); Scerri (2012); Neumayer (2012); Leßmann and Rauschmayer (2013); Voget-Kleschin (2013), all cited by Pelenc et al. (2015), as well as Byskov (2018) and Seckler and Volkert (2021). For Pelenc et al. (2015), this relationship boils down to four main points for an individual:

- Being able to participate in a group and influence local development processes and to implement sustainability benefits for all is typically a collective capability;
- Establishing social conversion factors (or groups) and being able to access instrumental freedoms such as political decision-making, education, etc., may be determining for sustainability implementation;
- Participating in collective action can alleviate the 'moral effort' that sustainability implementers requires which can not be assumed solely at the individual level; and
- Adopting sustainable practices implies taking into consideration other people's needs (future generations or people who live far away) in decision-making. This may be when self-regarding and other regarding goals converge.

In summary, this study investigates how individuals interact to create a collective actor and critically examines the process of developing collective agency and collective capabilities as well as identifies the tensions between the individual and collective levels from a sustainability perspective. In other words, the study sets out to link collective agency, collective capability, collective action, empowerment and sustainability, as well as its manifestation at the individual level in terms of the role that expansive learning plays on the above. The next section explores the need to understand what part agency plays in the Capability Approach literature.

3.6 Living the 'good life': Aspirations as 'beacons of agency'

The focus and relevance of this section is to situate agency analysis within the Capability Approach and the aspirations literature. Thus far, the sections above have introduced the notion

of aspirations and capacity to aspire as horizons for the expansion of capabilities and new aspirations to emerge (pathways). The question in this study is to understand how, by working on aspirations and related valued capabilities in an expansive learning formative intervention, the chosen aspirations and thus capabilities manifest (well-being achievement) and the kind of opportunities (well-being freedom) that are expanded by addressing contradictions and constraints affecting these aspirations from being realised. However, most important to this study is to also understand the kind of collective agency (in terms of transformative agency as described in Chapter Four) that such aspiration-learning processes unlock in navigating through contextual power dynamics and in understanding the role of aspirations in this process (the *process* aspect in the capability approach).

Agency and empowerment is important when exploring human capability within Appadurai's framing of aspirations which indicates that it is essential to emphasise that 'capacity to aspire' is not only about people being able to imagine aspirations but also to realise them (Appadurai, 2004). It is not only about defining the 'good life', whether as an individual or collective aspiration; what is important is 'living the good life' (White, 2009, p. 2). For Hart (2016), the functioning of aspiring, or capability to aspire, is already indicative of people's agency as well as being a freedom enjoyed by individuals valuable for human flourishing in its own right. Thus, the functioning of aspiring sits between the freedom to aspire and the capability to achieve the particular aspiration, so aspirations are powerfully situated as the forerunners to many capabilities. Aspirations also arguably constitute the kernels or precursor of many important capabilities which support human flourishing. Hart (2016, p. 336) supported the argument that aspirations can act as powerful engines of progress and development and that "aspirations matter as signifiers of what has come to have meaning and value for us, as individuals, or as social groups. They offer guidelines and navigational reference points, lode start for action"; they can be, in other words, viewed as beacons of hope (Nussbaum, 2016). This aspect resonates with Irna Conradie's view (2013) in Section 3.2 above.

3.6.1 Evaluation of agency achievement and agency freedom in the Capability Approach

As previously alluded to in Section 2.6.1 and Section 3.2, the Capability Approach is concerned with two concepts, namely capability and agency, which together constitute Sen's core notion of 'freedom' and conception of development as 'a process of expanding the real freedoms that people enjoy' (Sen, 1999, p. 3). Having 'freedoms' means having an array of options to choose from or, what Robeyns (2005a) called, 'opportunity sets'. Therefore according Robeyns (2005a,

p. 101), capability is synonymous with *capability set* or *opportunity set* defined by a combination of functionings, either potential or achieved, also referred to as 'well-being freedom'. However, Sen also suggested that over and above the evaluation of individual *well-being achievement* (valued functionings and aspiration achievement) and *well-being freedom* (the opportunities available to one in terms of one's own well-being), a person's capability should also be evaluated in terms of 'agency achievement' and 'agency freedom', these two being more difficult to operationalise (Gasper, 2007, pp. 337-339; Alkire, 2005, p. 122) or evaluate. A focus on agency will always transcend an analysis in terms of functionings and capabilities, and will take *agency goals* into account (Robeyns, 2005a, p. 103). These are understood as the objectives the person sets himself or herself to pursue whatever goals or values he or she regards as important (Sen, 1985a, p. 203) and the freedom to form agency goals in the first place is a kind of meta-freedom. With this in mind, it is important to make a clear distinction between well-being and agency goals (Sen, 1985a) as information on agency provides an indication of people's ability to set and pursue valued goals (ibid.) and aspirations, either individually or collectively. This aspect expands the ideas regarding evaluation of education and learning presented in Chapter Two, Section 2.6.6.

3.6.2 Structure and agency

According to Hart (2016), aspirations in themselves tell us little about the histories, power dynamics and discourses, norms, values and cultures that have shaped, enhanced, diminished and adapted them. As Bourdieu pointed out (Section 3.4), our predispositions may be strongly influenced by habitus, cultural and other forms of capital, our interaction with others and the configuration of power relations in a social context. Thus, aspirations mean little without examining their origin and location in existing structures, and so agency with regard to these aspirations may vary from high to low depending on whether these aspirations are in conflict with the prevailing orders. Cleaver (2007, p. 226) asserted that agency does not exist in a vacuum but that it is exercised in a social world in which structures shape the opportunities and resources available to the individuals but also acknowledging that agency is generative of individual transformations and social change and that agency is not necessarily subjected to the 'discipline' imposed by social norms and sanctions as these can be altered. The notion of 'creative' agents to be able to overcome these type of constraints and generate transformational change was also supported by Bourdieu (1977) in earlier work. These ideas lead to the concept of transformative agency rooted in CHAT as described in Chapter Four.

The implications of context related institutional arrangements on agency, from the point of view

of rural women and women in agricultural livelihoods, is fully fleshed out in Chapter Six where a more detailed description of the agricultural activity system of the women farmers group involved in this study is outlined. The particulars of this chapter include, for instance, the mediating role that culture, traditions and local norms have on the women's roles and responsibilities, their access and decision-making power over productive resources, to name a few.

3.6.3 The individual and social psychological processes of agency: Practical reason, 'self-scrutiny' and critical reflection

For Sen, the move from potential to functionings depends on a person's agency through the exercise of practical reason. Practical reason denotes the ability to form a conception of the good and to engage in critical reflection about the planning of one's own life (Nussbaum, 2001 as cited in Uyan-Semerçi, 2007) and the constraints under which people act, in other words, *situated agency* (Sen, 1985a as cited in Cleaver, 2007). According to Weber (as cited in Rapport & Overing, 2000), agency is therefore shaped by rationality consisting of self-consciousness, reflections, intention, purpose and meaning (Rapport & Overing, 2000). In the context of this study, it is interesting to note that outside the critical pedagogies promoted in the field of education in the Capabilities Approach in Chapter Two, traits of critical reflection and 'self-scrutiny' are being acknowledged as significant processes for agents to act. Ibrahim (2006, p. 401) quoted the work of Freire on "awakening of the critical consciousness" as a crucial process to bring about change that implies the need for agents to critically reflect on their problems and actively resolve these problems. And thus an agent usually initiates courses of action after a process of self-evaluation or 'self-scrutiny' to achieve an act in accordance with his/her own values (Davis, 2004 as cited in Ibrahim, 2006) in a social setting.

3.6.4 Collective agency, collective action and collective capability

Agency is also a possible source for examining the links between individual and collective levels in terms of reasons why people engage in collective actions. Acts of collective agency are mainly determined by prevailing communal values and social structures (Evans, 2002) linked to common aspiration. Agency is needed to pursue goals and aspirations of one's own as well as to bring about changes in their community (Sen, 1999, p. 19). Within the Capability Approach, individuals are considered "agents who have diverse valued goals and commitments on behalf both of themselves and of their society" (Alkire, 2005, p. 125). Agency is the capacity to achieve objectives that go beyond improving individual well-being and involves commitment to others,

such as taking part in community environmental protection (Sen, 2009) and local sustainable development (Pelenc et al., 2013).

Further to this, it is recognised that collective agency cannot be imposed; it has to emerge from a learning process (Pahl-Wostl, 2006 as cited in Pelenc et al., 2015). Here the role of public discussion and social interactions are particularly important in term of the emergence of shared values and commitments, as presented in Chapter Two under the deliberative democracy processes in Section 2.6.5. Social interactions, such as group discussions, community meetings, participatory workshops or informal conversations provide the opportunity for people to share their representation of the 'common good' and well-being with others (Pelenc et al., 2015, p. 228) and exercise collective agency by participating in a group with similar goals (Ibrahim, 2006). However, public discussions and social interactions do not automatically lead to the convergence of motivations, values and a shared sense of responsibility to others. Sometimes differences arise (divergence) between individuals and further interactions may not be possible as conflicts may not be resolved (Cleaver, 1999). When a group's common goals and objectives converge, this may lead to the collective agency, action and capability as framed by Pelenc et al. (2015) as follows:

- *Collective agency* encompasses the capacity of the group to define common goals and the freedom to act to reach the chosen goals. This requires both 'intangible' (e.g. definition of a common goal) and material basis such as resources (time, money, goods, services, etc.) and conversion factors (personal skills, networks, etc.)
- *Collective action* is restricted to the effective actions of the group. Collective action is "a situation where the interests of several social actors converge, thus leading to a voluntary engagement in a shared project in favor of a chosen cause" (Comeau, 2010, p.3 as cited in Penlec et al., 2015).
- *Collective capability* refers to the real opportunities available to a group of interacting people to achieve a set of functionings that is defined collectively as valuable.

Thus, it is important to distinguish between the two aspects of freedom: the *opportunity* aspect (well-being) as people's ability to achieve the being and doings that they have reason to value; and the *process* aspect (agency) as people's capacity to change their own situation and, more broadly, to change the social environment they live in, according to their goals and values. Human development should not only advance capabilities (opportunity freedoms) but also processes of freedom (agency). The normative goal of human development can be subsumed

to the improvement of people's capabilities through the exercise of their agency. When people lack agency, empowerment is required to unlock the process aspect of freedom. How does expansive learning support this?

3.6.5 Agency as closely related to empowerment

As referred to in previous sections, the capability approach stipulates that an evaluation of individual or social states should focus on people's real or substantive freedoms to lead the lives they find valuable, or in other words, their aspirations or goals with value. This real freedom is called a person's capability. This capability refers to a person's empowerment, the power that she has to be the person she wants to be and to have the kind of life she wants to lead. This represents an individual empowerment towards well-being freedom and requires access to opportunities available to the individual to choose from; this is an act of choice (Robeyns, 2005a). Sen (1999) referred to the above as *choice-mediated* control. It requires "the power within" or agency. This is the ability to define one's goals and act upon them. People are "durably empowered" when they exercise enhanced decision-making and can influence strategic life-choices and overcome barriers to agency and well-being freedom. When people lack agency, it is because the process aspect of freedom is blocked (Drydyk, 2008 in Penlec et al., 2015). This may be as a result of power relations such as those of relations of inequality which need to be transformed or transgressed. Thus, reflexive agents theoretically can question norms, challenge inequitable distribution of resources, claim and extend their rights. Here, agency is seen as empowering, and is potentially transformatory (Cleaver, 2007; Crocker & Robeyns, 2008; Gangas, 2015; Clark, Biggery & Frediani, 2019). And so "freedom" in the capability approach is understood as "a person's ability to get systematically what he would choose no matter who actually controls the lever of operation" (Sen, 1992, p. 65).

3.7 Conclusion

Chapter Three has provided the theoretical underpinnings of the Capability Approach in relation to understanding aspirations and associated capabilities and the role they may have in education, learning and development programmes and interventions such as the one pertaining to this study. Aspirations, as presented in this chapter, whether collective or individually constituted, have the potential to unlock agency and change the terms of recognition shaped by the socio-cultural and historical terrain from where they emerge. Through social encounters and deliberations, collective aspirations, once identified and reflected on, could bring about the type of agency necessary for capability to expand. This chapter also expanded on the notions of

capability and freedoms as the ultimate aim of human development and in the case of this study, the outcome of expansive learning processes and methodologies.

The following chapter (Chapter Four) presents the ontological and epistemological theories employed in this study in relation to theories of learning and development based on expansive learning and rooted in Cultural-Historical Activity Theory (CHAT).

CHAPTER FOUR: TRANSFORMATIVE AGENCY IN EXPANSIVE LEARNING PROCESSES

4.1 Introduction

The following chapter introduces the concept of *transformative agency* in expansive learning processes as well as its theoretical underpinnings rooted in Cultural Historical Activity Theory (CHAT). Transformative agency is understood in this study as an outcome of the learning and development intervention that research participants have participated in with the aim to transform their collective and individual capability in expanding their agricultural livelihoods and well-being, including gender empowerment. The chapter spells out the meaning and usefulness of transformative agency in this study, as opposed to other types of agency analysis (Section 4.2). The chapter also explains the theoretical roots of transformative agency being based in cultural historical activity theory, its theoretical and philosophical origins and the evolutions and transformations that activity theory has undergone from Vygotsky's original workings (Section 4.3). In this way I am able to understand the main conceptual tools proposed by the chosen theoretical framing and its implications in the mediation of learning, agency and capability expansion. The main conceptual tools or foundational epistemological principles of transformative agency relate to the CHAT principles of *double stimulation* and *ascending from the abstract to the concrete*, the latter being a process of concept formation (Section 4.4 and Section 4.5). Both principles are the backbone of formative research interventions and Change Laboratory methodologies (Chapter Five) herewith investigated. 'Double stimulation' provided the language of description for engaging the conflict of motives within the small-scale agricultural activity in the catchment of study and how these conflicts, together with other *stimuli*, became sources of learning and change at both the individual and collective planes and thus I was able to trace its connections to capability expansion (Chapter Seven and Eight). Additionally, the principle of 'ascending from the abstract to the concrete' provided the narrative tools to explore the process from the formation of a concept such as improved food production to its realisation and its emergence through a stepwise learning actions process based on an expansive learning cycle (Chapter Five). In other words, the learning actions and transformative agency expressions manifested through this process linking aspirations to capability to functionings and capabilities.

4.2 Transformative agency in Cultural Historical Activity Theory

In Chapter Three the role of agency in the Capability Approach was conceptualised as the link between aspirations and functionings or achieved capabilities. In other words, agency was understood as the ability to turn resources into functionings no matter how the contextual dynamics might inhibit the aspired capabilities from being realised. Although the Capability Approach alludes to deliberative democratic processes and the role of learning and education in nurturing agency, the theory does not explicitly elucidate how agency is both manifested at the mental or cognitive plain prior to materially being manifested in agentive actions and change - both at the individual and collective level, as a result of social learning interactions (Chapter Two). Cultural Historical Activity Theory (CHAT) offers the theoretical depth and epistemological tools to research how these pedagogical processes may lead to capability expansion.

Chapter Three also explained the argument held in the Capability Approach pertaining to the relationships between individual capability and collective capability and thus the agency aspect in this regard. Generally, it is recognised that collective agency and collective action is needed to deal with challenges where an individual actor alone may fall short. Theorising and research on agency has been predominantly focused on the individual psychological processes of the mind (Haapasaari, Engeström, & Kerosuo, 2016). Although some work has been done on transformative agency as a collective endeavour (Sannino, 2022), there is still a need and challenge to understand how volitional actions and transformative agency can be nurtured and how they develop over time. As such, my study aims to add to this body of work. How this type of agency emerges and how it can be nurtured should be the object of careful analysis aimed at advancing the endeavours of social change and improved capability to respond to the challenges of modern life and injustice. Transformative agency is needed to address current challenges regarding the moral dilemmas of human kind and the common good through the creation of social innovations to deal with them. In the context of this study, these include structural poverty, 'wicked' and 'run-away'¹⁰ problems influenced by coalitions of heterogeneous communities and stakeholders. As today's world is subject to constant changes, risks and uncertain situations, injustice and complex challenges, it has become critical to understand the kind of pedagogy and learning processes needed to nurture volitional or transformative agency and action (Haapasaari

¹⁰ *Run-away objects* have the potential to escalate and expand up to a global scale of influence, are poorly under anybody's control and have far-reaching, unexpected effects. They are contested objects that generate opposition and controversy; however, they have potential to open up radically new possibilities of development and well-being. They could also be 'natural forces' such as environmental threats (Engeström 2008a, p. 3).

et al., 2016). There is a growing interest among CHAT researchers to explore how transformative agency emerges when people deal with concrete problems within their activities and the implications for educational and pedagogical practices. The challenge has been concisely captured in Sannino's statement as follows:

In the world in which we live it is increasingly important to understand how people form wilful actions aimed at influencing the uncertain circumstances in which they live. Understanding how these actions emerge is at the core of the concept of agency and it is crucial challenge in education. (Sannino, 2015a)

These type of approaches require actors to not only collectively co-create new knowledge but also to reconfigure their relational, institutional and organisational patterns in order to generate intentional change; they require collective and individual agency to turn resources into capabilities and thus through this process to also develop capability to aspire. Transformative agency is based on Cultural Historical Activity Theory (CHAT) (Haapasaari & Kerosuo, 2015); this theory is central to this study (Section 4.3 below). In this study, transformative agency provides the tools to understand how mediation of learning in interventionist approaches, such as human development approaches, nurture the cognitive processes of the individuals working in collaboration with others in expanding their capability towards improved agricultural activity as well as overcoming social and personal gender barriers and injustices faced by the female research participants in their socio-cultural context of the rural Eastern Cape, South Africa. The next section focuses on denoting what transformative agency means as a conceptual and analytical tool rooted in activity theory in order to help me to examine how capability, including gender justice, may be expanded through mediated expansive and social learning processes.

4.2.1 The 'transformative' nature of agency in activity theory: Key characteristics

Agency in this study is understood as the capacity or ability of an individual to take intentional action independently of the constraining power of social relations (Burton & Wildon, 2006; Campbell, 2009 both cited in Vänninen, Pereira-Querol & Engeström, 2015) leading to individual capability. This study also recognises that no single actor may have sufficient power and resources to pursue his or her aspirations and related capabilities without taking into account and coordinating with other actors (Aarts et al., 2007; Klerkx & Aarts, 2013; Caldwell, 2005 all quoted in Vänninen et al., 2015). Activity theory regards collective or 'shared' agency as a group of people collaboratively taking initiative to develop their activity (Virkkunen, 2006, p. 43 quoted by Haapasaari et al., 2016; Sannino, 2022). Here agency is understood as distributed, dispersed, and decentralised among and across multiple actors in organisations and communities

(Vänninen et al., 2015 quoting Buchanan et al., 2007). In other words; agency in CHAT challenges the dominant individualist perspectives or rhetoric of human agency alluded to (see Section 3.6 in Chapter Three). According to Vänninen et al. (2015, p. 39), transformative agency is a collective process based on social learning approaches whereby the “construction of shared mental models among the individuals involved so pursuing change becomes situated within wider social units, whereupon learning occurs through social interaction and processes between actors within a social network” (Bos et al., 2013; Reed et al., 2010; Scholz et al., 2013 all quoted in Vänninen et al., 2015, p. 39). Having said this, it is recognised that transformative agency may be initiated by an individual but will only find meaning in collective activity systems as a result of the relational nature of agency and the actors’ wilfulness to envisioning new possibilities within their joint activity towards collective change efforts (Engeström, Sannino, & Virkkunen, 2014; Engeström & Sannino, 2013 as cited in Engeström, Kajamaa, & Nummijoki, 2015; Haapasaari et al., 2015; Haapasaari et al., 2016; Sannino, 2022) or the exercise of collective capabilities.

4.2.1.1 Relational agency – transformative agency differentiation

Transformative agency builds upon the notion of relational agency based on networks and relationships, as elaborated in the psychology and educational field; from which transformative agency generates and expands through its work on contradictions. Edwards (2005a, 2007, 2009) introduced the notion of relational agency in education research as a type of agency that depends on the person’s capability to create and maintain social reciprocities, alliances and network relations (Edwards, 2005a) – in the same way as the Capability Approach recognises being able to form and participate in a group as a capability in itself (Sections 3.5.3 in Chapter Three). In the exercise of relational agency, the alignment of one’s thoughts with those of others predisposes the act of jointly responding to those collectively defined interpretations and to beginning to reveal how mediation can accompany these externalisations (Edwards, 2007, p. 15). In CHAT terms, this means the capacity to work with others to expand the object that one is working on by bringing to bear the sense-making of others and to draw on the resources that they offer when responding to that sense-making (ibid., p. 4) (Section 4.2.1.3). In other words, relational agency is based on multi-agency collaborations so as to transform the world, or activity where a joint suite of concepts and resources are brought to bear on the problem itself or the object of activity at hand (ibid., pp. 5-6). Interestingly, the relational agency discourse, as the Capability Approach on public deliberations or deliberative democracy engagements suggests (Section 3.6.4 in Chapter Three), is not only about dialogical reasoning but also collaborations infused by mutual responsibility or the moral aspect of actors or individuals engaging with the

sense-making and definition of shared goals or value capabilities for the common good (Edwards, 2007 quoting Hicks, 2000) by defining the purpose and conditions of engaging in joint action.

Transformative agency builds on the concepts of relational agency (Edwards, 2005a, 2009) in that it underlines the crucial importance of expansive transitions from individual initiatives towards collective actions to accomplish systemic change (Engeström & Sannino, 2010) through working on conflict of motives, contradictions and dissonances, as outlined in the section below.

4.2.1.2 Work on contradictions and conflict of motives

Transformative agency, according to Virkkunen (2006) and others such as Haapasaari et al. (2016), Engeström et al. (2014), Engeström and Sannino (2010); Haapasaari et al. (2015) and Sannino (2022), differs from other types of agency as agentive action, or clusters of volitional action, evolves from working on contradictions and conflict of motives by questioning the status quo of current collective activity to the elaboration of new possibilities to break away from well-established constraining frames. These constraints may be cultural systems of meaning, such as local norms and traditions, that shape and constrain human action and reproduce patterns or routines that, only when they become apparent and critically scrutinised, can be discontinued, enabling actors to intentionally initiate change (Hays, 1994). Hence the 'transformative' nature of agency (Engeström et al., 2014, p. 124) is defined, within the activity theory framework used in this study, as "breaking away from the given frame of action and taking the initiative to transform it" (Virkkunen, 2006, p. 49 and Haapasaari et al., 2016). Transformative agency is, in summary, the capacity to form and implement intentions that go beyond and transform the accepted routines and given condition of an activity (Engeström & Sannino, 2016), such as unequal power relations and other forms of injustices. It is based on this transformative intent and its generation emerges from dealing with deep-rooted contextual dissonances or barriers. I find transformative agency, within this framing, useful for the analysis of capability expansion (in education and learning processes) in the context of this study (see Section 3.2 in Chapter Three on work on aspirations and capabilities).

In CHAT, ... agency appears in actions, and it develops in historically shaped collective activity systems, tightly connected to the motives and contradictions contained within them. Transformative agency is about working with the contradictions of an activity system. It includes actions of questioning the status quo and of search for new possibilities. Although initiated by individuals, agentive actions gain their meaning, their consequences and their continuity in the interplay between individuals and their

collective. In this sense, agency is collectively produced and maintained. (Haapasaari, et al. 2016, p. 235 quoting Virkkunen, 2006 and Engeström, 2007)

4.2.1.3 Object-orientated by anchoring in concrete circumstances

The object-orientated focus of transformative agency alluded to in Section 4.2.1.1 above, indicates that volitional action, and thus human development, can be nurtured as a result of mediated sense-making processes in the development of shared or agreed interpretations of the object for joint action. The object and motive of activity, in CHAT words, drives change through the mediation of tools and signs that are rooted in the social-cultural and historical context of such activity (Sannino, 2015b) (see Section 4.3.1.1 on CHAT below on genetic analysis of events). However, for Heckhausen and Gollwitzer (1987 as cited in Sannino, 2015a), a focus on motivation (such as aspirations as defined in the previous chapter) alone fails to explain the frequent failure of people to implement their intentions in practice. Subsequently the work of Gollwitzer and Sheeran (2006 quoted by Sannino, 2015a) showed that the likelihood of actual implementation of an intention in practical actions was significantly increased when the subject anchors his or her intention in some concrete circumstances, such as specific time, place, or social situation in an activity in crisis. This is a significant aspect for this study as indicated in Chapter Eight with the introduction of a material stimuli which assisted to reorganise the collective activity to act on a specific circumstance of deep interest to the women farmers group herewith investigated.

4.2.1.4 Volitional actions

In early work of activity theory, the concept of agency was encompassed by the notion of volitional action and will (Engeström et al., 2014, p. 124). Volitional action evolves from Vygotsky's work referring to the creation of a new situation by having to overcome an obstacle and to resolve and break out of a paralysing conflict of motives (Vygotsky, 1987,1997 as cited by Hopwood & Gottschalk, 2017). Volitional action is such that it transforms the situation and gives new meaning "by changing the psychological field" (Hopwood & Gottschalk, 2017 citing Vygotsky, 1987, p. 356). Sannino (2015b) alerted us to the distinction between the terms 'voluntary' and 'volitional' as per original Russian writings of activity theory which referred to voluntary action as arbitrariness and possibility of deliberate choice, while the term 'volitional' carried the connotation of strong will applied by overcoming obstacles. While the quality of 'voluntariness' points to the structural changes in all higher mental functionings, volitional action on the other hand stems, as mentioned, from conflicts of motives or contradictions.

4.2.1.5 Evolves over time (expansive)

Transformative agency, as pointed out, foregrounds the crucial importance of expansive transitions from individual initiatives and aspirations towards collective action to accomplish a systemic change (Haapasaari et al., 2016, p. 233). With this in mind, transformative agency emerges over time, in lengthy processes of learning (Vänninen et al., 2015) which often require complex debates and deliberations and stepwise crystallisations of a vision to be implemented (Engeström & Sannino, 2016 and Haapasaari et al., 2015 – as discussed in Section 2.6 in Chapter Two on education, learning and deliberative democracy approaches in the Capability Approach and Section 3.5 in Chapter Three on aspirations and collective capability).

Expansive learning by definition requires and fosters transformative agency (Engeström & Sannino, 2016, p. 2). Section 4.3.6 below presents the contemporary need for expansive learning as well as more detailed insights into some of its characteristics and principles such as the principles of *double stimulation* and *ascending from the abstract to the concrete*. The two principles are fleshed out in Section 4.4. and Section 4.5. Before going into these details, the theoretical underpinnings of activity theory are outlined in Section 4.3 below. I have chosen transformative agency and CHAT as the theoretical framing for this study in order to understand the move from aspirations to capabilities and agency on the basis that CHAT forefronts fundamental concepts to understand the cognitive and material (actions) process undertaken through agentic actions or transformative learning actions.

4.3 Introduction to CHAT and expansive learning

4.3.1 The origins of CHAT

Cultural Historical Activity Theory (CHAT) was originally launched by Lev Semyonovitch Vygotsky in the 1920s-30s in the Soviet Union in collaboration with other scholars such as Leontiev and Luria and later continued and expanded to what became known as the Vygotskian school (Stetsenko & Arieievitch, 2010, pp. 231-234). In his early career he dealt with problems of educational practices and found opportunities for studying the relationship between learning and human development as a social construction of the mind (Vygotsky, 1978); in other words, he studied the “higher psychological processes”¹¹ in humans, and thus the dialectic relationship between individual learning (and development) and the history, culture and society in which

¹¹ Higher psychological processes or functionings: Vygotsky's developmental psychology is the transition from 'lower' processes to 'higher' functions. 'Lower' means reflexes and spontaneous, rudimentary conscious processes and 'higher' includes developed, voluntary, mental functions, categorical perception, voluntary attention, and voluntary movement (Vygotsky, 1987).

learning was situated (ibid.) – inspired by Marx psychology on dialectical materialism (see Section 4.3.1.1 below). Stetsenko and Arievidt (2010) reiterated that in order to understand change in human practice (through learning), it is necessary to analyse its current status as well as its historical development and that human development should be envisioned as a collaborative social practice of people who jointly aim to transform the world (ibid.); it is an emancipatory process rooted in social justice and equality. It is within this dichotomy (people-environment) that the CHAT project, as envisioned by its founders, had the potential to understand and cultivate transformations in a reciprocal way: the individual (through volitional will and action) can transform the environment as well as the environment transforms the individual. In other words, CHAT calls for the adoption of a relational ontology of human development where social and psychological phenomena are understood as processes that exist in relationships with others (Stetsenko, 2008) and between individuals and their world. In this sense, culture becomes a part of each person's nature (Vygotsky, 1978) and that analysis of human learning and action through the insertion of cultural artefacts, such as tools and signs, including language (see Section 4.3.1.3 below), which became a great contribution in the field of psychology. This was expressed by Engeström (2001) as:

The individual could no longer be understood without his or her cultural means; and the society could no longer be understood without the agency of individuals who use and produce artefacts. This means that objects ceased to be just raw material for the formation of logical operations in the subjects as they were for Piaget. Objects became cultural entities and the object-orientedness of action became the key to understanding human psyche. (Engeström, 2001, p. 134)

The distinctive seminal findings from Vygotsky's work include the notion that 'learning leads development' (Vygotsky, 1978, p.90) and that agency or volitional action may be mediated which is further explored in Section 4.4 below on double stimulation as a method to volitional action. For the purpose of this study, I found it useful to summarise Vygotsky's contributions to the field of psychology and education into the following key themes (Wertsch, 1991):

- i. A reliance on genetic, or developmental, analysis (dialectical)
- ii. The higher mental functioning in the individual derives from social life (Zone of Proximal Development)
- iii. The claim that human action, on both the social and individual planes, is mediated by tools and signs (artefacts)

These themes are briefly described in the following sub-sections and should not be interpreted

as separate strands but rather as closely intertwined in that their power derives from the ways in which they presuppose one another.

4.3.1.1 Genetic, or developmental, analysis (dialectical)

As alluded to above, from an early career Vygotsky's socio-cultural theory of higher mental processes drew on Marxist dialectical materialism. According to Marx, historical changes in society and material life produce changes in "human nature" both at the conscious as well as behavioural plane and his theories claimed that higher mental functionings in the individual are rooted in social life (Wertsch, 1991, p. 25). So Marxist psychology provides the language to explain and analyse how the collective is incorporated in the individual through processes of mediation (and tools) and suggests these could be used to transform ways of thinking and acting to the benefit of the greater good (Edwards, 2005b); hence the dialectical nature of individual and the society interactions as "the way we see, think and act in our world are shaped by the cultures in which we are formed and in turn we shape those cultures by our actions" (Edwards, 2007, p. 259). Based on the dialectical worldview, Vygotsky made genetic analysis the very foundation of the study of the mind, which is to discover its nature and essence as having social, cultural and historical origins (Wertsch, 1991). Mental development is a socio-genetic process from which learning results from social interactions between individuals and society through the internalisation of culture and social relationships (ibid.). This dialectical relationship is an important conceptual claim for understanding the process of 'intentionality' inhabited in humans as a 'dual process of shaping the environment and being shaped and so the traditional dichotomies of subject-object, person-environment, can not be analytically separated and temporally ordered into independent and dependent variables' (Daniels, 2004, p. 36 quoting Cole, 1996).

Based on the above, Vygotsky (1978) argued that higher mental functionings in individuals arise first in the collective activity or social sphere (inter-psychological), and only later are they transformed by the learner into his or her mental activity (intra-psychological) based on a process of *semiotic* mediation between this dialectic relationship of an *intermental* (social plane) and *intramental* (individual plane). In other words, *internalisation* refers to the transformation of social functions into individual skills and is related to the reproduction of culture (Daniels, 2008, p. 3). *Externalisation*, on the other hand, is defined as the process that produces artefacts that are used to transform culture (Prior, 1997, p. 278).

In this regard, it is of interest in this study to deepen our ontological view of our understanding regarding the collective capability versus individual capability dichotomy discussed in Chapter Three from the point of view that an individual forms part of a larger matrix of society, coming to exist through engaging with others to collaboratively transform the world (Stetsenko & Arievitch, 2010, p. 248). When these notions are applied to cognition and learning, it can be argued that cognition arises in a shared activity based on the acknowledgement that the interpersonal (intermental) precedes the intrapersonal (intramental) and so cognition is considered to be distributed among individuals and socially constructed; it also follows that collective capability may bring about the change that individuals alone may be unable to do. Distributed cognition, therefore, is a necessary characteristic of human functioning.

All human societies face cognitive tasks that are beyond the capabilities of any individual member. Even the simplest culture contains more information than could be learned by any individual in a life-time, so that tasks of learning, remembering, and transmitting cultural knowledge are inevitably distributed. The performance of cognitive tasks that exceed individual abilities is always shaped by a social organisation of distributed cognition. Doing without a social organisation of distributed cognition is not an option. (Hutchins, 1995 quoted in Daniels, 2004, p. 70)

4.3.1.2 Higher mental functionings in the individual derives from social life (ZPD)

Another important claim from Vygotsky's work on learning and development is in connection with the 'zone of proximal development' (ZPD) which helps to explain the way in which social and participatory learning takes place; in other words, understanding the social origin of higher mental functioning in individual surfaces (John-Steiner & Mahn, 1996 cited in Daniels, 2004, p. 56).

The ZPD was originally defined by Vygotsky as the "distance between a child's actual developmental level as determined by independent problem solving and the higher level of potential development as determined through problem solving under adult guidance or in collaboration with more capable peers" (Vygotsky, 1978, p. 86). This refers to a process in which the object of learning can be mediated by others. Of interest in this study is the 'collective' interpretation of ZPD over and above the 'scaffolding' or 'cultural' interpretations identified by Lave and Wenger (1991 in Edwards, 2007; Daniels, 2004) which led to Engeström's workings on expansive learning from the point of view that new forms of collective solutions generated in the ZPD originated from the contradictions embedded in current understanding. For Engeström, the ZPD was understood as the "distance between the everyday actions of individuals and the historically new form of the societal activity that can be collectively generated" (Engeström, 1987, p. 174) and in expansive learning the historical analysis of contradictions that need to be resolved

is the point of departure to chart the ZPD in order to move forward in overcoming these contradictions (Engeström & Sannino, 2010). As a result, Engeström developed a model of transformation in which both internalisation and externalisation developed complementary roles as depicted in the expansive learning cycle (Chapter Four). The externalisation aspect brings perspective to the notion of 'concept formation' and transformative agency in learning and development, also referred to as 'ascending from the abstract to the concrete' (Section 4.5 below). The expansive learning process suggests particular pedagogic implications promoting reflection and metacognitive development as well as other forms of development through the production of cultural artefact or tools in collaborative activity (Daniels, 2004, p. 45).

4.3.1.3 Human action, on both social and the individual planes, is mediated by tools and signs.

Another claim from Vygotsky's seminal work refers to his lifelong project on human semiotic action (or mediated action) through the use of psychological and material artefacts in intermental and intramental functioning (Wertsch, 1991, p. 29). Vygotsky's ideas on mediation were influenced by a *Marxist dialectical materialist* view (as pointed out in Section 4.3.1.1 above) by taking into account the social relationships in the development of the mind as well as considering the role of culturally produced artefacts in organising human thinking (Lantolf, 2004 as cited in Daniels, 2008). In other words, education, learning and development is critically influenced by the material.

An artefact is an aspect of the material world that has been modified over the history of its incorporation into goal-directed human action. Artefacts are simultaneously ideal (conceptual) and material (Cole, 2005). Artefacts include tools (or technical tools), signs (or psychological tools) and language, used in mediation and they lead to qualitative transformations at the mental and physical plain (Wertsch, 2007). Artefacts can be categorised as (Cole, 2005, p. 203 quoting Wartofsky, 1973):

- *Primary artefacts*: those directly used in production (e.g. axes, needles)
- *Secondary artefacts*: consist of representations of primary artefacts and of modes of action using primary artefact. They play a central role in preserving and transmitting modes of action and belief. They include traditional beliefs, norms, constitutions.
- *Tertiary artefacts*: imaginary artefacts that can come to colour the way we see the 'actual' world, providing a tool for changing current praxis. They can come to constitute a relatively autonomous 'world' in which the rules, conventions and

outcomes no longer appear directly practical, or which seemed to contribute to an arena of non-practical activity, or 'free' play or game.

Vygotsky also developed the method of *double stimulation* in a complex process of semiotic phenomena by studying the learners' flow of mental function and behaviour when introducing simple psychological tools or "stimuli-means" in a learning process (Vygotsky, 1981 as quoted in Wertsch, 1991). This led to further analyses and development of the principle and method of double stimulation as a conceptual tool to understand and nurture volitionality and agency detailed in Section 4.4.

Overall, Vygotsky's view on education, learning and development differed from other education and psychology projects of the time dominated by positivist approaches such as the work of Pavlov's behavioural approach to psychology. Although his work was prohibited during the Stalin era and its theoretical expansion and reach restricted by his death at an early age, Vygotsky's ideas made a significant impact on the world of education and psychology. Vygotsky's socio-cultural historical perspectives to cognitive development and social transformation have given rise to a number of applied learning theories such as social and expansive learning (see Section 4.3.6). Learning can shape the evolution of new human activity in open systems (Engeström, 2015).

4.3.2 Activity theory: Vygotsky's schools and post-Vygotsky school

Activity theory seeks to analyse the development of consciousness within practical social activity systems so the emphasis is on the psychological impacts of organised activity and the social conditions and systems which are produced in and through such activity. (Daniels, 2004, pp.185-189).

Cultural-Historical Activity Theory (CHAT) was developed based on Vygotsky's earlier work on socio-cultural psychology (see Section 4.3.1 above) as well as from the work of his Russian colleagues Leont'ev and Luria (Edwards, 2005b; Engeström & Sannino, 2010). CHAT was also inspired by the classic German philosophies of Kant, Hegel, Marx and Engels (Engeström and Miettinen, 1999)

What is an activity system?

An activity system, simply explained, is made of a group of people who are aiming to do something together in a purposeful way (Peal & Wilson, 2001). In other words, an activity is

defined as the engagement of subjects toward a certain goal or objective where people engage in deliberations to address issues pertaining to the attainment of their goal by using different sources of materials (Luria, 1979). Leont'ev asserted that *activity* is “the minimal meaningful context for understanding individual actions” (as quoted in Fenwick, Edwards & Sawchuk, 2011).

4.3.3 Three generations of activity theory

Engeström distinguished three generations of activity theory based on three different units of analysis with a fourth generation of activity theory currently in development (Engeström & Sannino, 2021). These are presented in the sections that follow.

4.3.3.1 First generation CHAT

First generation activity theory was attributed to the work of Vygotsky on dialectical mediation, as discussed above; as well as the work of Leont'ev who shifted the focus from mediation to the object of activity, arguing that activities are motivated by their object, resulting in revealing the object-oriented nature of learning and doing (Daniels, 2008). Figure 4.1 depicts the mediational *triad* of ‘subject’, ‘tool’ and ‘object’ as the unit of analysis that brings together their relation based on the idea that people learn from their culture and history by applying its conceptual and material tools to transform the object (Engeström, 1987).

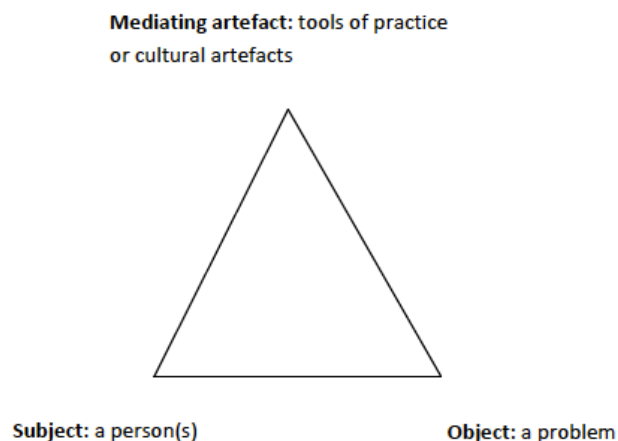


Figure 4.1: A first generation model of mediated action (adapted from Engeström, 2001, p. 134)

Engeström (2001) found limitations to Vygotsky’s theory of mediation as the unit of analysis was the individual limiting the application of the theory to the collective. This gave rise to second generation CHAT.

4.3.3.2 Second generation CHAT

Building on first generation activity theory, Engeström added more components to the triad, namely 'community', 'rules' and 'division of labour' and thus expanded individual action to collective activity; the individual thus became seen as part of social relations. Engeström (1987) developed a graphic design of human activity, depicted in Figure 4.2 below; which brought into focus the relations between object-oriented activity, the agents or individuals, and the community to which they belong. By doing so, the complex interrelations of the subject and his or her community became the unit of analysis (Engeström, 2001). For Engeström, an activity was a collective and systemic formation with a complex structure that develops over socio-historical time and often takes the form of institutions and organisations. Whereas an action is relatively short-lived with a clear temporal beginning and end (Daniels, 2004, p. 86).

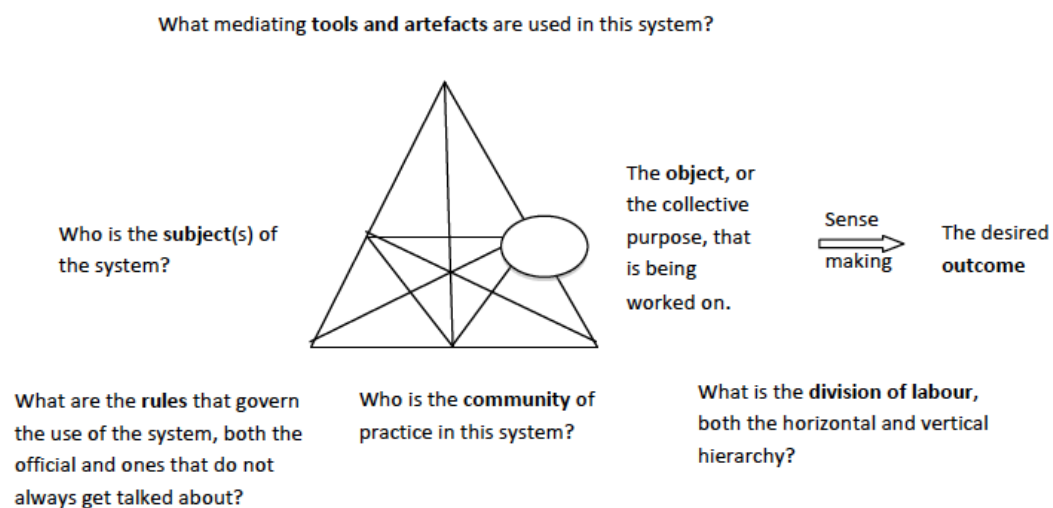


Figure 4.2: A second generation mediational triangle of a cultural and historically constituted activity system (adapted after Engeström, 1987, p. 178)

By drawing attention to the 'collective' nature of cultural-historical activity theory, engaging in activity collectively may not only transform individuals and their community by increasing action potential to change their life conditions but also opens up the ZPD for individual learning and transformation (Roth, 2004) – see Section 4.3.1.1, Section 3.5 and Section 2.4.

For Engeström (2001), as presented in Figure 4.2 above, "an activity is undertaken by a human agent (subject) who is motivated toward the solution of a problem or purpose (object), and mediated by tools (artefacts) in collaboration with others (community). The structure of the activity is constrained by cultural factors including conventions (rules) and social strata (division

of labour) within the context". In other words, the relation between individuals and the object of their activity are mediated by explicit and/or implicit concepts and technologies (tools and artefacts); the relationships between the community and the overall object of its activity are mediated by its division of labour and the relations between individuals and the communities of which they are part. These are mediated by rules and procedures, which can also be implicit or explicit (Blackler, Crump & McDonald, 2000). The elements found in the second generation activity system are described as follows (Engeström, 1987):

- *Subject*: the individual or sub-group whose position and point of view are chosen as perspectives of the analysis
- *Object*: the raw materials or problem space at which the activity is directed. The object is turned into outcome with the help of tools and signs
- *Community*: individuals and sub-groups who share the same general object
- *Division of labour*: horizontal division of tasks and vertical divisions of power and status
- *Tools*: conceptual and material artefacts for understanding or transforming the object. They carry culture, history, skill and knowledge involved in developing them.
- *Rules*: explicit and implicit regulations, norms, conventions and standards that constrain action within the activity system

The oval representation of the object indicates the object-orientated actions as moving targets, "characterised by ambiguity, surprise, interpretation, sense-making, and potential for change" (Engeström, 2001, p. 134).

For Leont'ev, activities are distinguished from one another by the difference of their objects and the transformation of the object in an activity is driven by its motive. He made the distinction that an action is driven by its goal and an operation is driven by the conditions and tools available to the action under the prevailing circumstance. In this way, to understand why separate actions are meaningful, one needs to understand the motive behind the whole activity (Leont'ev, 1978). For Engeström, being interested in collective activity, emphasised that learning and development are driven by deeply communal motives and that the motives are embedded in the object of the activity (Engeström, 2000, p. 964).

Engeström was also inspired by Marx's ideas in terms of the inner relations of production, consumption, exchange and distribution stating that there is no activity without the component of production differentiating three mediated sub-systems of human activity: production which is mediated by tools; exchange, is mediated by rules; and distribution is mediated by division of labour (Engeström & Ahonen, 2001; Cole, 2005). According to Roth (2004, pp. 4-5) participation in activity also produces and reproduces the very structure of the community, of which the individual is a constitutive part.

Furthermore, drawing on Il'enkov (1977), Engeström emphasised the role of 'contradictions' in an activity system as sources of change and development and transitions to a process of social transformation. Contradictions should not be considered the same as problems or conflicts but instead, contradictions are "... historically accumulating structural tension within and between activity systems" (Engeström, 2001, p. 137). The identification of internal contradictions in an activity system helps to surface the root cause of problems in activities and guide the formative intervention efforts towards addressing these. Collaborative analysis and modelling is a crucial precondition for the creation of a shared vision for the expansive solutions to tackle the identified contradictions (Engeström, 2000, pp. 964-66). Internal contradictions come in four types (Engeström, 1987):

- *Primary* contradictions exist within each constituent of an activity system;
- *Secondary* contradictions are found between the constituents;
- *Tertiary* contradictions juxtapose the object of the dominant form of activity with the object of a culturally more advanced activity; and
- *Quaternary* contradictions exist between each entity of the dominant activity and its neighboring activities.

4.3.3.3 Third generation CHAT

The third generation of activity theory proposed by Engeström in the 1990s introduced the concept of multiple interacting activity systems of second generation expanding the unit of analysis to the relations between these multiple activity systems (Engeström, 1999; 2001; 2008a) to a societal level (Figure 4.3). Here the intention was to develop conceptual tools to understand dialogues, multiple perspectives and networks of interacting activity systems by drawing on ideas of dialogicality and multivoicedness (Daniels, 2004, p. 91). Such tools involve concepts of 'boundary crossing' in order to analyse the unfolding of object-oriented cooperative activity of several actors (Engeström, 1999 in Daniels, 2004, p. 90) and to show the importance of

stakeholder's interactions across the activity systems in jointly developing 'boundary objects' as they overcome the 'edges' of discontinuity and separation between the inside and outside of a community and as a result, enable coordination and collaboration between these communities (Wenger, 1998).

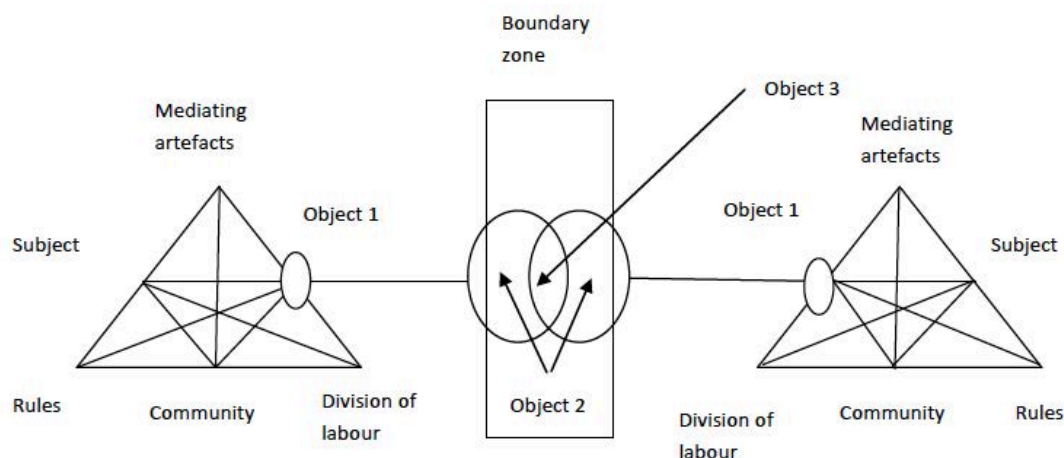


Figure 4.3: Third generation activity theory: Two activity systems with a partially shared objective as a minimum unit of analysis (Source: Engeström, 2008b, p.14)

A fourth generation of activity theory is currently under development (Engeström & Sannino, 2021; Spinuzzi, 2021; Sannino, 2020) taking the suggestions presented by Engeström in the “future of activity theory” (2008a) further. In “From Mediated Actions To Heterogeneous Coalitions: Four Generations of Activity – Theoretical Studies of Work and Learning,” Engeström and Sannino (2021) discuss the fourth generation of activity theory as comprising heterogeneous coalitions that are involved in intertwined learning cycles aimed at resolving wicked societal problems building on ideas and instruments developed by the preceding generations (ibid.).

In a nutshell, CHAT provides a theory and methodology, such as expansive learning (section 4.3.6) to mobilise collective agency (or transformative agency as per Section 4.2 above) in a process of people working together to address and respond to the contradictions jointly identified in their activity system. This is presented in my study as the group of women farmers who voluntarily came together to address the structural and historically developed constraints that affect their well-being and prevent them from realising their agricultural aspirations.

4.3.4 Principles of CHAT

Activity theory may be summarised with the help of five principles as outlined below (Daniels, 2004; Engeström, 2001):

- i. The first principle is that a *collective, artefact-mediated* and *object-oriented* activity system, seen in its network of relations to other activity systems, is taken as the prime unit of analysis. Goal directed individual and group actions, as well as automatic operation, are relatively independent but subordinate units of analysis, eventually understandable only when interpreted against the background of entire activity systems. Activity systems realise and reproduce themselves by generating actions and operations.
- ii. The second principle is the *multi-voicedness* of activity systems. An activity system is always a community of multiple points of view, traditions and interest. The division of labour in an activity creates different positions for the participants carry their own diverse history, and the activity system itself carries multiple layers and strands of historical engraved in its artefacts, rules and conventions. The multi-voicedness is multiplied in networks of interacting activity systems. It is a source of trouble and a source of innovation, demanding actions of translation and negotiation.
- iii. The third principle is *historicity*. Activity systems take shape and get transformed over lengthy periods of time. Their problems and potentials can only be understood against their own history. History itself needs to be studied as local history of the activity and its object, and as history of the theoretical ideas and tools that have shaped the activity (or more global history).
- iv. The fourth principle is the central role of *contradictions* as sources of change and development. Contradictions are not the same as problems or conflicts. Contradictions are historically accumulating structural tensions within and between activity systems. The primary contradiction pervades all elements of an activity system. Activities are open systems. When an activity system adopts a new element from the outside (e.g. a new technology), it often leads to an aggravated secondary contradiction where some old element (e.g. division of labour) collides with the new one. Such contradictions generate disturbances and conflicts, but also innovate attempts to change the activity.
- v. The fifth principle proclaims the possibility of *expansive transformations* in activity systems. Activity systems move through relatively long cycles of qualitative transformations. As the contradictions of an activity system are aggravated, some individual participants begin to question and deviate from its established norms. In some cases, this escalates into collaborative envisioning and a deliberate collective change effort. An expansive

transformation which is accomplished when the object and motive of the activity are reconceptualised to embrace a radically wider horizon of possibilities than in the previous mode of activity. A full cycle of expansive transformation may be understood as a collective journey through the zone of proximal development of the activity.

4.3.5 Some critiques of CHAT

CHAT is not a mastered theory and in relation to my study, I found (as Rivers, 2015 also encountered) that aspects of power and social relations have not been adequately addressed. Niewolny and Wilson (2009 as cited in Rivers, 2015) confirmed that little attention has been given to issues of power especially on how this shapes the learning opportunities and practices for some individuals over others. Fenwick (2000, p. 245) stated “to understand human cognition, we must, from a critical cultural perspective, analyse the structures of dominance that express the social relationships and competing forms of communication and cultural practices within that system”. Daniels (2012, p. 381) also paid attention to power relations in CHAT as an area that needed strengthening. However, Engeström (2008a) in considering “the future of activity theory” acknowledged that the weak treatment of power in activity could be overcome with the possibilities that third generation brings in terms of being able to examine the horizontal relations as well as the vertical power relations. This may lead to strengthening aspects of ‘power’ analysis in the formulation of ‘Fourth Generation CHAT’ (Engeström & Sannino, 2021).

4.3.6 Expansive learning

This study is designed along the theoretical and methodological features of expansive learning as a process, as indicated in Section 4.2 above, that aims to foster transformative agency and change in human activity, including the navigation of structural conflicts and injustices. Expansive learning was formulated over 30 years ago and mostly developed at the University of Helsinki, in the Centre for Research on Activity, Development and Learning (CRADLE). Since the publication of ‘Learning by Expanding’ by Engeström in 1987; the theory has undergone various transformations (Engeström & Sannino, 2010) and is still under development. In South Africa, the Environmental Learning Research Centre (ELRC) at Rhodes University has conducted (and continues to conduct) a range of studies in the field of natural resource management; sustainable agricultural development and, climate change education, to name a few which have contributed to this scholarly work (see Section 5.5.7).

Expansive learning, as pointed out in Section 4.3 above, has its theoretical roots in the foundational ideas from four figures of the Russian cultural-historical school, namely Vygotsky, Leont'ev, Il'enkov and Davydov; together with other concepts from the work of Bateson and Bakhtin (Engeström & Sannino, 2010), the main conceptual basis of expansive learning has been produced. These ideas are aimed at formulating a learning theory that would assist society to grapple with, and change the pressing contemporary issues facing humankind (ibid.). There is a recognition from various spheres of work that people need to engage in new modes of learning in order to be able to address and change the emerging global threats and risks, as well as social and ecological injustices, by adjusting their practices to change the prevailing political and ethical order in the world.

With this as the backdrop, expansive learning involves various actors constructing their object and motive of activity by moving away from the boundaries of the individual to collective activity. This type of learning is initiated by the subjects of the activity themselves when they begin to question the existing order of the activity and eventually, through overcoming their differences and conflicting perspectives and world views (Engeström, 2001), a new model of activity is implemented collectively. Expansive learning also draws on the historical analysis of contradictions identified in the activity system (Section 4.3.3.2) as way to chart the Zone of Proximal Development (ZPD) (Section 4.3.1.2) that needs to be traversed in order to move towards novel solutions to overcome these contradictions (Engeström & Sannino, 2010) from which a new model of activity starts to emerge. The new model of activity includes a more complex and wider reconfiguration of all members and elements of the collective activity system (Edwards, 2005b; Engeström & Sannino, 2010). In other words, there is a qualitative systemic transformation of the activity (Daniels, 2004, p. 191). Expansive learning is different from other kinds of learning as the learner learns something that “it is not yet there” (Engeström, 2016; Engeström & Sannino, 2010). In contrast to the ‘positivist’ skills development programmes widely employed in, for instance, the agricultural field, where the aims and learning outcomes are predetermined in terms of knowledge, skills and a change of patterns of behaviour as described in Chapter Two (Section 2.5), in expansive learning, outcomes are centred around the implementation of a new expanded object and new collective work practices, including practices of thinking and discourse (Engeström, Kerosuo, & Kajamaa, 2007) as well as new aspirations and capabilities.

Through the expansive learning cycle, new patterns of activity and concept formation are the result of a process of internalisation and externalisation of higher-mental functionings. This is described in Section 4.3.1.2 above from Vygotsky's workings referring to internalisation as the reproduction of culture and externalisation as the creation of artefacts that may be used to transform culture. In this context, externalisation is of particular importance as it refers to the ideas around concept formation and agency in learning and development and in other words, "expansions" originated in joint community (Daniels, 2004; Engeström, 1999). Agency is the most important outcome of expansive learning as it implies the participants' ability and willingness to shape their activity system (Engeström & Sannino, 2010). Expansive learning is transformative agency evolving over time in expansive cycles as outlined above in Section 4.2. Expansive learning forms the basis of formative interventions or research and thus agency is also an outcome of formative interventions (Engeström, 2001; Engeström & Sannino 2010). This is further elaborated in Section 5.2 in Chapter Five – Methodology.

The above reconceptualisations and transformations of activity may require different kinds of learning to come into play along the expansive learning process in different forms and stages (Daniels, 2004). Bateson's (1972) levels of learning can be described under three categories (Engeström, 1987, 2001):

- *Learning I:* Acquisition of the responses believed correct in the given context (e.g. the learning of correct answers in the classroom).
- *Learning II:* People acquire the deep-seated rules and patterns of behaviour characteristic to the context itself (e.g. learners learn the 'hidden curriculum'). This type of learning happens when learners encounter contradictions leading to a double bind. This type of learning can lead to learning III.
- *Learning III:* Person or group begins to radically question the sense and meaning of the context and to construct a wider alternative context. It is essentially a collective endeavor which can be rare and dangerous. It is a learning activity which has its own typical actions and tools. Bateson (1972) suggested that expansive Learning III is triggered by double binds generated by contradictory demands imposed on the participants by the context (Engeström, 2001, p. 142). The bread and butter of human development is collective learning III. Here, the individual makes a contribution to societal development and thus indirectly to his own individual development (Engeström, 1987). During "Level III learning" the learner must first have an opportunity to analyse critically and systematically their current activity and

its inner contradictions, what Engeström calls the *context of criticism*, and transform the activity from within – this leads to the principle of ascending from abstract to concrete (criticism, discovery and application).

4.3.7 Application of CHAT in this study

I have chosen CHAT and expansive learning as the theoretical framing and as methodology to facilitate and understand the move from aspirations of the group of women involved, to the expansion of their agricultural capabilities, agency and well-being on the basis that CHAT foregrounds the fundamental concepts to understand the cognitive and material (collective actions) processes that take place through manifestations of agentive actions or transformative learning actions. The application of CHAT to my study is outlined in more detail below.

- i) Cultural historical activity theory (CHAT) and the Capability Approach (CA) has helped me to seek deeper insight into the relationship that exist within the activity system of the subjects and the objects they are working on, mediating tools that are used, rules that govern the use of the system, the community of practice involved in the system and the division of labour among those working in the system (Daniels, 2008); as well as to pay special attention to understanding the relationship between resources and the conversion factors that are necessary to turn resources into functionings, which is a process necessary to unlock capabilities or valued beings and doings (Sen, 1999; Robeyns, 2005a) associated with household food security and ecological integrity (Phase I of the study as presented in Chapter Six).
- ii) CHAT provided me with the tools to nurture transformative agency and change with the women's group. The mediation of transformative agency is a key element in CHAT (see section above) based on foundational epistemological principles of formative interventions in activity theory (Sannino, 2011; Sannino, 2022): *double stimulation* and *ascending from the abstract to the concrete*.
- iii) The principle and tool of *double stimulation* (Section 4.4 below) refers to the mechanism with which human beings can intentionally break out of a conflictual situation and change their circumstances or solve problems (Morselli & Sannino, 2021; Engeström, Nuttall, & Hopwood, 2022). I, for instance, first initiated the double stimulation process by introducing the *contradictions* found in the agricultural activity as stimuli for further development within the group, to trigger conflict of motives and eventually, the move from abstract to concrete, resulting ultimately in the attainment of valued capabilities (Chapter Seven and Chapter Eight).

- iv) *Ascending from the abstract to the concrete* (Section 4.5 below) is the basis of formative interventions and the theory of expansive learning cycle charted by the Zone of Proximal Development (Engeström, 2020a; Engeström, Sannino, & Virkkunen, 2014). From the contradictions made evident by the analysis of the agricultural activity, the participants entered the ZPD which led to the modeling and examination of solutions to respond to these contradictions (Chapter Seven and Chapter Eight).
- v) The expansive learning cycle was completed during Phase II of the study. Expansive learning forms the basis of formative interventions or research (Engeström, 2001; Engeström & Sannino, 2010) “in which learners strive to become agents of their own learning, which coincides with active reshaping of their collective activity at work” (Haapassari et al., 2014). The learners, in this case, the women’s group, went through a process of initial resistance which culminated into the reconfiguration of their group as well as the reconceptualisation of their activity as a whole. The process was driven by the learners themselves with both research assistance and my assistance as the ‘provokers’ of learning and collective agency.
- vi) *Change Laboratories (CLs)*, as promoted in CHAT, are interventions that aim to transform human behaviour and the world around them (Sannino, 2015b). I conducted a series of CLs during the course of Phase II (see Chapter Five) drawing on conceptual tools derived from two epistemological principles of double stimulation and ascending from the abstract to the concrete as suggested by Sannino (2011).

4.4 Double stimulation as a conceptual tool to understand volitionality and agency

This section describes in more detail the principle and method of *double stimulation* as well as the tools, these being a series of *auxiliary stimuli*, to nurture volitional action and transformative agency used along the expansive learning process in formative interventions.

4.4.1 Double stimulation as a method to study the higher mental functions in learning and development: Memory, concept formation, volition and agency

The method of double stimulation has its roots in the work of the early twentieth-century Russian psychologists Vygotsky, Luria and Leont’ev and can be viewed as the interventionist legacy within CHAT (Eri, 2013, p. 2461). The method of double stimulation appears somewhat fragmented in the literature, with its original interpretations related to a method employed to study

higher mental functioning or higher forms of behaviour of the subject such as memory, attention, concept formation and volition through semiotic mediation (ibid., p. 2461) with culturally developed tools and signs by the subjects themselves (Sannino, 2015b, p. 5). Double stimulation is generally understood as a method of experimental investigation where two different types of stimuli (mediating artefacts) are used. One group of stimuli has the function of a task, or 'first stimuli', toward which the activity of the experimental subject is directed, whilst the other group, 'second stimuli', takes on the function of signs that help to organise the activity (Vygotsky, 1931 as cited in Sannino, 2015b, p. 1). Second stimulus artefacts, according to Thorne (2015, p. 63), are important in enabling a learner or groups of learners or participants to reinterpret a situation conceptually in a new and potentially expansive way which is creatively constructed by the users as stimuli filled with situation-relevant value and purpose. Generally, the method is based on observing how subjects use these tools or *stimuli* to resolve conflict situations (Hopwood & Gottschalk, 2017) (see Section 4.4.4). Vygotsky (1978, p. 74) described the methodology of double stimulation when presenting the subject with a learning task as follows:

The task facing the child in the experimental context is, as a rule, beyond his present capabilities and cannot be solved by existing skills. In such cases a neutral object is placed near the child, and frequently we are able to observe how the neutral stimulus is drawn into the situation and takes on the function of a sign. Thus, the child actively incorporates these neutral objects into the task of problem solving. We might say that when difficulties arise, neutral stimuli take on the function of a sign and from that point on the operation's structure assumes an essentially different character. (Engeström, 2011, p. 604)

Although Vygotsky's work on double stimulation mainly focused on children, the method of double stimulation elicits manifestations of crucial processes in the behaviour of people of all ages. The tying of a knot, for instance, is an example presented by Vygotsky to assist people with the function of memorising linked to *signifying* the tying of a knot (or neutral stimuli which could be the throwing of a dice or counting to three) to their problem-solving efforts prior to acting on their decision. Double stimulation is an important method to help *objectify*, or *externalise*, the inner psychological processes of the mind (Engeström, 2011; Sannino, 2015b; Haapasaari & Kerosuo, 2015, p. 41) and in this way be able to trace the higher mental processes triggered by the second stimuli adopted (Sannino, 2015b).

Sannino and Laitinen replicated Vygotsky's 'waiting experiment' as a case of second stimuli (auxiliary means) that provoked the participant under investigation put in a meaningless situation to make the decision to leave the room when the clock struck the time that was purposely decided

(Sannino & Laitinen, 2015). In contrast to the 'waiting experiment', in general mediation practice, double stimulation experiments place the subjects or participants in a structured situation where a problem exists and they are actively guided towards the construction of a new means to the end solution (Veer & Valsiner, 1991 cited in Engeström, 2011). Although the method of double stimulation has been tested in different ways, it is considered in line with the methodology of activity theory (Engeström, 2011). The method of double stimulation was employed in this study to examine the move from aspirations to capabilities and the role that 'material stimuli', and other types of stimuli, had on people to act on their valued capabilities necessary for their agricultural activity to expand (Chapters Seven and Eight).

4.4.2 Double stimulation as an epistemological principle of formative interventions

Double stimulation is characterised by Sannino (2015b) as a principle of volitional action as it is not simply a series of steps to be followed in an experimental setting (as referred to above); it is, however, also the way in which human behaviour is regulated, with specific connection to volition as a characteristic of higher mental function (Hopwood & Gottschalk, 2017). In most recent work on double stimulation, the emphasis has been on study volition and agency in expansive learning methodologies in formative interventions as a process to build novel concepts, agency and will (Engeström, 2011). In other words, double stimulation has been used in a way that goes beyond the enhancement of performance in specific tasks of learning and problem solving to, in fact, support transformative agency to 'break away from pre-existing patterns of activity' (ibid., p. 611), as alluded in Section 4.2 above on Transformative Agency. In this context, double stimulation is geared to "making subject masters of their own lives" (Engeström, 2007, p. 383) by aiming at developing expansive learning using the method of Change Laboratories and in formative interventions within activity systems (Sannino, Engeström, & Lemos, 2016, pp. 603-604) this is in collective activity. This is captured by Engeström as follows:

... the formation of new solutions, concept, and skills in double stimulation is much more than just a cognitive learning achievement. It is a liberation achievement of agency formation, which gives expansive personal and collective meaning to the associated cognitive and cultural learning contents. (Engeström, 2007, p. 374)

The principle of double stimulation can also be studied outside the context of the experiential 'classroom' type intervention. Hopwood and Gottschalk (2017) studied double stimulation in the transformation of activity in everyday practices. This is in a situation where there are no research interventions or experimental set-ups and what has become known as "in the wild".

4.4.3 Double stimulation as tool in mediating volitional actions: First stimuli and second stimuli

Double stimulation is considered a principle of volition which provides a good conceptual tool for the analysis and understanding of the emergence of human agency (Sannino, 2015b; Thorne, 2015) that is in motion and nurtured through mediation (Hopwood & Gottschalk, 2017). Vygotsky indicated that volitional action is never a directed process and that one's own actions are only accomplished through mediation with the use of signs as auxiliary devices to solve psychological problems (Vygotsky, 1960/1997 cited in Hopwood & Gottschalk, 2017). He also implied that these functions may also be oriented towards others' behaviours (ibid.).

As previously alluded to, the method of double stimulation makes internal and unobservable psychological processes visible as processes of objectification of inner psychological traces by revealing their structure. These are firstly triggered by an initial problematic situation or *first stimuli*; followed by a *second stimuli, or series of stimuli*, which are employed by the person or learners as external artefacts that turn into signs by filling them with significant meaning. Such signs, used as second stimuli, are taken up by the subject to gain control of his or her action and construct new understanding of the initial problem. It is through this process that the subject transforms the meaningless situation, as portrayed in the 'waiting experiment' mentioned above, into one that has a clear meaning (Engeström et al., 2014; Sannino et al., 2016).

In adopting double stimulation as a foundational mechanisms from which volitional action emerges out of mediated interventions, the first stimuli, as the problematic situation, triggers a paralysing conflict of motives (Sannino, 2015b) (see Section 4.4.4 below). Having to overcome an obstacle to resolve and break out of a paralysing conflict of motives is what makes an action truly volitional (ibid.). Understood this way, a volitional action is always also a change action, an action that transforms the situation and gives it a new meaning. In this perspective, volitional action is the core of transformative agency, defined as breaking away from the given frame of action and taking an initiative to transform it (Engeström et al., 2015) – refer to transformative agency in Section 4.2 above.

In summary, the formation of both first and second stimuli usually evolves and changes as the learning intervention unfolds. For Engeström the construction of second stimuli to be effective and taken up by the subjects should involve (Engeström 2011, p. 621): i) active construction by the participants; ii) an ambiguous and often skeletal or sketchy artefact is step-by-step filled with

increasingly rich meaning; iii) taking the shape of a relatively stable material representation that can serve as an 'anchoring device'; and iv) being constructed for the purpose of dealing with the challenge of the contradiction manifested by the first stimulus.

4.4.4 Double stimulation and volitionality based on contradictions, conflict of motives and resistance in work activity

The volitional process of 'complex choice' is connected to the formation of motives and the making of decisions which rest upon the use of auxiliary stimuli (Sannino, 2015b, pp. 2-3 quoting Vygotsky). Hence the link between volitionality and auxiliary stimuli as the latter is used to control one's behaviour (Vygotsky, 1997 cited in Engeström et al., 2014) as described in the 'waiting experiment' (see Section 8.3.4) with the subject using the clock as auxiliary stimuli to get out of a meaningless situation. Volitionality for Vygotsky concerned both the processes of cognitive development and self-control, meaning that the learners' psychological functions become, on the one hand, intellectualised; and on the other, 'voluntarised' (Sannino, 2015b citing Bozhovich, 2004).

As mentioned in Section 4.2.1.4 above, for Sannino (2015b), double stimulation is a principle of volitional action, which arises from divergent motives that direct a person towards different actions. Sannino (ibid.) drew on Leont'ev's (2005) ideas that actions in activity can be driven by various motives as quoted in "a volitional act is an act carried out under the conditions of polymotivation, when different motives have different affective signs, that is, some positive and other are negative" and that "if an action is carried out without obstacles, it can not be volitional" (Leont'ev, 2005, quoted in Sannino, 2015b, p. 8). For Vygotsky (1926/1997) this notion of opposite forces refers to the presence of desires, wishes, impulses and goals in human consciousness that are, on one hand, initially presented as the ultimate goal people strive towards, and secondly, are representations of the actions that are needed by the person himself in order to realise the goal; that these two forces lead to volitional acts that emerge from their clash in our consciousness as opposite and as a struggle of motives. Sannino and Engeström (2016, as cited in Hopwood & Gottschalk, 2017; Sannino et al., 2016) argued that if conflict of motives and volitional acts are disregarded, double stimulation is easily reduced to simply another term for general notion of mediation. To understand the principle of agency, double stimulation cannot be subsumed into the general idea of mediation by symbolic tools and it is important to analyse the role that 'conflict of motives' have in volitional acts (Sannino & Engeström, 2017; Sannino, 2022).

Conflict of motives denotes a clash between opposite aspirations or tendencies which occur in situations involving uncertainty about the situation in which one is or about one's own conduct, and requiring the courage to deliberate choice. Conflicts may certainly have different degrees of explicitness and tension. (Sannino, 2015b, p. 8)

Engeström also noted the generative and expansive feature that 'conflicts of motives' may be when these lead to novel solutions, actions and concepts (Engeström, 2007); thus double stimulation can be seen as a generative mechanism filled with will for change (Engeström et al., 2014, p.121).

Transformative agency, as outlined in Section 4.2.1.2 above emerges not only from divergent motives that direct the subjects to different actions, but is also rooted in the analysis of the contradictions found in the collective activity as sources of new possibilities to break away from well-established constraining frames and the resistance that may arise in interventions between the change introduced by the 'interventionist' from above with the initial resistance from the participants from below (Engeström, 2011 building on Sannino, 2008, as quoted in Haapasaari et al., 2014, p. 233).

Despite the extensive work carried out by Vygotsky and others with regard to the connection between auxiliary stimuli and volitional action, as pointed out in previous sections; this interrelationship seems to be the least understood and articulated in the literature (Sannino, 2015b). In my study close analysis on how double stimuli nurtured transformation agency in the women's group became appropriate in order to contribute to this body of work.

4.5 Expansive learning and actions: Ascending from the abstract to the concrete

This section presents the principle of ascending from the abstract to the concrete as a generative expansive process through the abstraction and modelling of a *germ cell* and by linking to the principle of double stimulation during its initial steps. That is, the process from identifying contradictions and conflict of motives to the reconceptualisation of the object of activity, volitionality and transformative agency (see above section).

Davydov (1990, 2008), inspired by Ilyenkov (1982), turned the principle of *ascending from the abstract to concrete* into a theory of learning and into an interventionist approach in activity theory (cited in Sannino et al., 2016; Sannino & Engeström, 2017). By following the logic of ascending

from abstract to concrete, Davydov suggested that learning activity typically follows a sequence of specific epistemic or learning actions. These are:

- i. Transforming the conditions of the task in order to reveal the universal relationship of the object under study;
- ii. Modeling the identified relationship in material, graphic, or literal form;
- iii. Transforming the model of the relationship in order to study its properties in 'pure form';
- iv. Constructing a system of particular task that are solvable by a general method;
- v. Monitoring and assessment of the performance of the preceding actions; and
- vi. Evaluating the assimilation of the general method that results from solving the given learning task. (Davydov, 2008 quoted in Engeström, 2014, p. 122)

Davydov's learning actions formed the basis from which formative intervention was built and thus, also became embedded in the theory of expansive learning cycle and ZPD as the move from individuals to a collaborative processes that leads to the formation of new expanded objects and patterns of activity (Engeström et al., 2014). The theory of expansive learning is described in Section 4.3.6 above.

A critical aspect to understand the logic of ascending to abstract from concrete, is the concept of a *germ cell* (Sannino et al., 2016; Sannino & Engeström, 2017). A germ cell formation is based on Marx's dialectical movement of thinking explained as the method that starts from the real concrete to the world as it presents itself to us (the abstract) and proceeds through abstraction of a germ cell by separating from this whole the unit with which we think about; to the thought of concrete, the reconstituted and now understood whole (Marx, 1904 cited in Engeström et al., 2014). This dialectical movement of thinking is further elaborated as follows:

In dialectical-theoretical thinking, based on ascending from the abstract to the concrete, a *germ cell* abstraction captures the smallest and simplest, genetically primary unit of the whole functionally interconnected system under scrutiny. This is a method of grasping the essence of an object by tracing and reproducing theoretically the logic of its development of its historical formation through the emergence and resolution of its inner contradictions. The initial germ-cell abstraction is step-by-step enriched and transformed into a concrete system of multiple, constantly developing manifestation. (Engeström et al., 2014, p.122)

In short, a germ cell is described as a unit of opposites; it is expansive and has to be discovered by the learners in the process of attaining a rich reconceptualisation of the object of activity (Sannino et al., 2016, p. 604). This process consists of *practical experimentation* with a problem situation, connecting to its genetic-historical origins and abstracting from it an explanatory basic

relation, or germ cell. The theoretical abstraction of a germ cell is based on the identification and modeling of a functional relationship that explains the simple principle behind a complex whole “in a pure, independent, uncovered form” (Vygotsky, 1997, cited in Sannino & Engeström, 2017, p. 83). A germ cell abstraction is an internally contradictory unit, a unity of opposites, that can generate expansive complex and theoretically mastered concrete development of the reality under scrutiny, in other words; it can open up rich and diverse possibilities of explanations, practical application, and creative solutions (Engeström, Nummijoki, & Sannino, 2012 cited in Sannino et al., 2016; Sannino & Engeström, 2017). These generative solutions are expansions of a *germ cell* manifested in concrete novel implementations and extensions of the germ cell itself aimed to be developed in expansive learning processes and formative interventions.

Based on the above, ascending from the abstract to the concrete may be connected to the principle of double stimulation in various ways. The challenging process of germ cell abstraction may stem from the contradictions found in the activity and conflict of motives facing the participants that lead to the construction of a second stimulus as a means for breaking out of the meaningless situation leading towards the modelling of a germ cell. However, in some cases, the second stimulus may also be the first version of a germ cell (Engeström & Sannino, 2010; Sannino & Engeström, 2017). The process of ascending from the abstract to the concrete is best articulated by Sannino and Engeström (2017, p. 94) as follows:

Depiction of movement, from the tentative identification of contradictions to the use of problematic first stimuli to trigger a conflict of motives, to the construction of second stimuli to break out of the paralyzing conflict, and on to the formation of a zone of proximal development and a germ cell abstraction that gives specificity and substance to the general developmental direction the participants have committed to.

The germ cell abstraction in this study is described and analysed in Chapter Seven and Chapter Eight as the mechanism to move from the women farmers group aspirations and value capabilities with regard to their object of activity, small-scale farming; to the expansion of their capabilities towards attaining a more productive and sustainable livelihood. The germ cell abstraction manifested throughout the process of expansive learning during the initial stages gained greater meaning as new stimuli were introduced. The germ cell related to the tension pertaining to the foundational contradiction of the activity, this being the pull between having local productive resources in abundance yet participants not being able to access these resources as a result of the long socio-political and historically structural constraints affecting rural South Africa, as will be shown later.

4.6 Conclusion

Chapter Four has introduced the concept of transformative agency and its theoretical underpinnings rooted in CHAT. Transformative agency evolves from Vygotsky's original workings on the higher psychological functions of a subject and volitional actions. The chapter has also dedicated a section, Section 4.3, to uncover the main theoretical and philosophical foundations of activity theory and their role in shaping the theory of expansive learning. Expansive learning promotes transformative agency and as such, it was also important to understand the two foundational principles of expansive learning in formative research interventions. These two principles, double stimulation and ascending from the abstract to the concrete, helped me to understand and analyse the process undertaken by the research participants in expanding their agricultural capability towards being more productive and sustainable. Section 4.4 and Section 4.5 have provided an introduction to these two principles making the link between transformative agency, expansive learning and activity theory.

The following chapter, Chapter Five, explains the epistemological and methodological implications of the theories and philosophies presented in Chapters Two, Three and Four. The chapter discusses the research design and methodological framework employed in this study together with the requirements expected of a qualitative research process in terms of developing and implementing data generating techniques, analysis of data and ensuring quality and validity in the study.

CHAPTER FIVE: METHODOLOGY AND METHODS

5.1 Introduction

The previous chapter, Chapter Four, provided an introduction to the methodology employed in this study as being in line with the formative intervention research tradition which is associated with expansive learning approaches, methodologies and methods (Engeström, 2001; Engeström & Sannino, 2010). The chapter also alluded to the two epistemological principles of double stimulation and ascending from the abstract to the concrete as embedded in these methodologies (Sannino, 2011), together aiming to nurture transformative agency and change within or between collective activity systems or constellations of activity systems (Engeström, et al., 2014). This chapter, Chapter Five, presents the study design and methodological framework in more detail (Section 5.2 to Section 5.4) including the data generating methods implemented in the study (Section 5.5), research quality, validity, ethical implications (Section 5.6 to Section 5.8), and the analytical framing (Section 5.9).

This chapter shows how I engaged with the research participants by drawing on critical theory and tools to engage in a research process with the aim of fostering empowerment and transformation (Janse van Rensburg, 2001, pp. 23-26). I therefore set out to mediate a participatory process for co-constructing new knowledge, prioritising valued aspirations and capabilities in relation to social-ecological livelihoods and catchment management. Gasper (2007, p. 355) emphasised that prioritisations of capabilities should come through public reason and debate, and specifically through participation and democratic choice.

Through a mediated expansive learning process, such as the one described in this chapter, there is potential for knowledge to become emancipatory, enabling both researcher and research participants to develop inter-subjective objectivity through dialogue and critique by surfacing tensions and contradictions of the studied activity system and therefore expand capability.

The study was conducted over three phases as indicated in the introductory chapter, Chapter One, and further elaborated in the sections that follow. The first phase of the study was embedded in a larger Water Research Commission project with a focus on understanding the context of the agricultural activity system and the women's group's agricultural goals and aspirations. During Phase One from 2012 to 2015, the contradictions internal to the activity under

research were surfaced and broad recommendations for agricultural capability expansion and empowerment for the Eastern Cape province were captured in a report for policy recommendations presented to the research participants for final reflection and input. During this phase I used data generating methods such as document analysis, focus group, semi-structured interviews, observations and reflexive annotations. This phase aimed to respond to the following research question as

What tensions and contradictions in aspiration-practice relationships shape household food security and ecological health in the women farmers group in the Lutengele area?

During Phase Two between 2016 and 2018, the systemic contradictions identified in the previous phase were deliberated with the women's group as mirror data to initiate the expansive learning process. The main method for data generation during the expansive learning phase pertained to the Change Laboratory formative interventionist method as a tool for mediating and examining the transitions, both at the cognitive and material plane emanating from the shared collective aspiration and associated capabilities, as defined by the women's farmers group. The change laboratory workshops also allowed tracing the participants' capabilities expansion manifested in functionings and agency as well as the change in developing capacity to aspire and in this way responded to the research question

Can expansive learning processes shape conversion factors for turning available resources into functionings that enhance household food security and catchment management capabilities?

Semi-informal interviews were also conducted with individual women to follow up on how the collective endeavour fostered in the change laboratory workshops along the expansive learning process developed their capability towards the attainment of their agricultural aspirations and enhancement of household dynamics or not.

The final phase, Phase Three, did not require data generation and was allocated to synthesising the findings of the study by interpreting expansive learning and the capability approach theory as presented in Chapter Nine.

5.2 Methodological framework: Formative research interventions

5.2.1 Formative research

Formative research or interventions are derived from the ideas of Vygotsky and colleagues (Engeström, 2011; Sannino, 2011; Engeström et al., 2014) and so its theoretical and conceptual tools and methodologies are rooted in activity theory. Formative intervention has gained momentum as a research orientation that focuses on transformations in both work organisations and communities working on activities in crisis (Engeström et al., 2014; Laitinen, Sannino, & Engeström, 2016). In formative interventions, learning and agency are at the very centre and the intervention strives for learners to become in control of their own learning and thus become active agents to transform their collective activity system (Haapasaari et al., 2016, p. 236) in interventions such as expansive learning processes (Engeström, 2001; Engeström & Sannino, 2010). Formative interventions build on the Developmental Work Research legacy (see Section 5.2.2 below) of the CHAT Finnish school (Engeström, 2011) and differ from other traditions such as the widespread participatory action research orientation employed in, for instance, education within human development and capabilities research initiatives advocated in Chapter Two (see Section 2.6.6). In such studies, the content and goals of research are known ahead of time by the researchers and in some cases, the participants themselves. In formative research, the researchers intervene to support open-ended learning processes where the initial intention of the research/interventionist endeavour is merely a starting point. It is through an expansive process and the use of conceptual tools derived from cultural-historical activity theory, namely the method of double stimulation and stimuli-means, that the participants produce their own collective designs and object-motives in their newly developed activity (Sannino et al., 2016). This process allows for researching the traces of concept formation through a process of ascending from the abstract to the concrete (Engeström, 2011). Furthermore, drawing on the work of Engeström and Sannino (Engeström and Sannino, 2010; Engeström, 2011) and others, some key features of formative intervention, echoing the foundational principles found in CHAT, include:

- i. The starting point of a formative intervention, as cited above, are often considered as complex situations with deep rooted contradictions for which a solution is not fully or not known in advance by either the learners nor the research or mediator. Outcomes or novel solutions are context-dependent and emerge (Engeström & Sannino, 2010) as a result of the choices and negotiations deliberated (Engeström 2008a) through the process of becoming and discovering what is not yet there (Leont'ev, 1977, as cited in Engeström et al., 2014).

- ii. A formative intervention is a process in contested terrains that is full of resistance, reinterpretation and surprise for the actors in the design experiment (Engeström, 2007; Engeström, 2011; Laitinen et al., 2016). “Resistance and subversion are not accidental disturbances that need to be eliminated. They are essential core ingredients of interventions and they need to have a prominent place in a viable intervention methodology” (Engeström, 2011, p. 603). A formative intervention, therefore, is the “purposeful action by a human agent to create change” (Midgley, 2000, p. 113 as quoted by Engeström, 2011).
- iii. In formative interventions, the design is driven by historically formed contradictions (Engeström & Sannino, 2011) in the learners’ activities and is the result of the learners’ collective efforts to understand and face these contradictions and the problems they engender. Contradictions are therefore a source of change and development (Sannino et al., 2016). These are used as ‘mirror data’ to the learners for further reflection of their practice and the design of possible alternative futures of the activity in question (Engeström & Sannino, 2010; Sannino et al., 2016). The underlying notions of causality may not be questioned in these types of research.
- iv. In formative interventions, the researcher together with the participants jointly analyse the activity in question and collaboratively construct and implement a new model of activity (Engeström & Sannino, 2010, p. 6). The researcher’s role becomes one of a moderator of the research process as it unfolds, as well as a ‘gatekeeper’ of the emerging understanding that is guiding the participants in their quest for reconceptualisation of the object-motive of activity and activity itself (ibid., 2010) - see Section 5.2.4.

5.2.2 Developmental Work Research and expansive learning cycle

Engeström’s expansive learning cycle, and in turn formative interventions as mentioned in Section 5.2.1 above, are supported by a series of Change Laboratory intervention sessions (see Section 5.5.7 below) or workshops. These are often referred to as Developmental Work Research (DWR) (Daniels, 2008; Mukute 2010), upon which this research process is based (see Table 5.1 for details on study phases). The DWR methodology was used in this study as a process that enabled me to formatively intervene in the agricultural activity in the Lutengele area (Lower Mzimvubu River catchment) in ways that have engaged research participants to address some of the contradictions in relation to their aspiration-practice within an ecological sustainability, human development and gender justice framing. Expansive learning is characterised by Engeström (1999) as an expansive transformation that is only accomplished when the object and motive of the activity are re-conceptualised to embrace a radical wider

horizon of possibilities than in the previous mode of activity. Both the expansive learning process and transformations that evolved during the course of this study are captured and described in Chapters Seven and Eight. In short, Daniels (2004) described expansive learning as the creation of new knowledge and new practices for a newly emerging activity, that is, learning embedded in a constitutive of qualitative transformation of the entire activity system. The theory of expansive learning as underpinned by CHAT epistemological principles is further discussed in Section 4.3.6. Figure 5.1 below depicts the expansive learning cycle with seven epistemic actions.

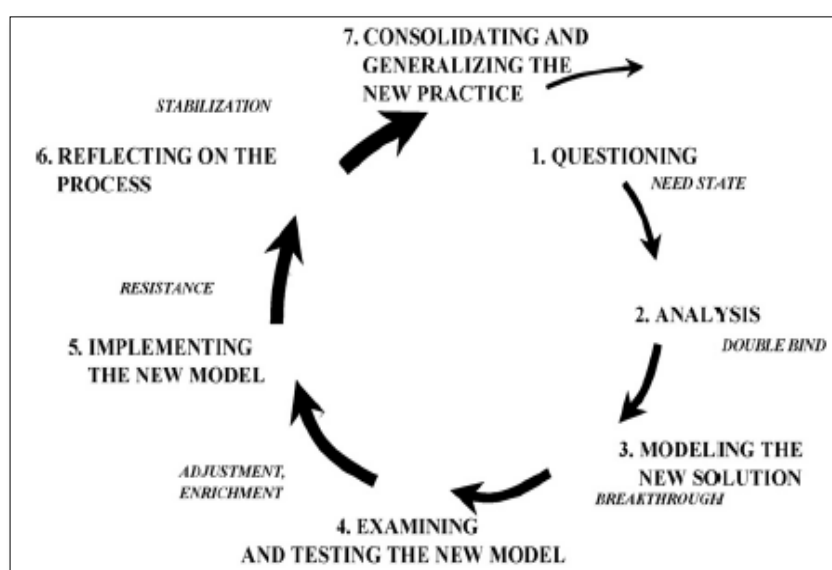


Figure 5.1: Sequences of learning actions in expansive learning cycle (Engeström, 2000)

These learning actions or steps are described as follows (after Engeström, 1999, p. 384):

1. *Questioning*: drawing on researched evidence to question existing practice or existing wisdom;
2. *Analysing*: invoking 'why' questions to seek out explanatory principles. Historical-genetic analysis aims to explain the situation by tracing the origin and evolution of the contradiction, while the empirical analyses the inner systemic relations;
3. *Modeling*: involves the construction of new ways of working or engaging with practice;
4. *Examining the model*: experimenting with the new model to fully grasp its dynamics, potentials and limitations;
5. *Implementing the model*: working with the model in real life situations and monitoring its impacts;
6. *Reflecting*: using monitoring data to evaluate the model for refinement; and
7. *Consolidation*: implementing the refined model into a new, stable form or part of practice.

An expansive learning cycle typically last several years and is realised through a series of successive or parallel smaller cycles of local innovation and reorganisation (Engeström et al., 2007) with their expansive proliferation dependent upon activity being situated within the macro-organisation (Warmington et al., 2005). Keeping continuity in the process generally requires actions of bridging from small cycle to cycle that may have happened in the past or elsewhere in the organisation of activity. Bridging is thus an important aspect of expansive learning inasmuch as it glues the temporal and social space along the continuum of mini-cycles for the learning process to not be terminated nor fade away (Engeström et al., 2007).

A large-scale, expansive cycle of organizational transformation always consists of small cycles of innovative learning. However, the appearance of small-scale cycles of innovative learning does not in itself guarantee that an expansive cycle is going on. Small cycles may remain isolated events, and the overall cycle of organizational development may become stagnant, regressive, or even fall apart. (Engeström, 1999 quoted by Engeström et al., 2007, p. 323)

Moreover, Engeström's work involves developmental intervention-based research and derives from activity theory and its roots are in the Vygotskian method of double stimulation and the principle of ascending from the abstract to the concrete (see Section 4.4 and Section 4.5). The expansive learning cycle is inspired by Davydov's steps of ascending from the abstract to the concrete through the generation of germ cells. These were described in Chapter Four, Section 4.5. Furthermore, Engeström draws on ideas of *dialogicality* and *multivoicedness* (Daniels, 2004) in processes for learning, development and agency infused by the need for collectives to transform a current activity to a better one through critical thinking and reflexivity, and hence my inspiration to explore expansive learning as a critical pedagogy to discover the transition from collective aspirations and capabilities to the achievement of 'well-being' (not only human well-being but also ecological well-being) within the wider context of this study (Chapter Two). The section that follows, Section 5.2.3, highlights the reliance on deliberative democratic processes found in the Capability Approach literature to the prioritisation of collectively defined capabilities and aspirations as potential drivers of agency, value change, learning and development. Deliberative democracy also alludes to a participatory dialogical and reflective process based on conflicts and differences (see Section 2.6.5). As a result, I was sensitised to these ideas and incorporated them within the research methodology, design and methods employed in this study based on the theoretical framing of CHAT research.

5.2.3 Human development and the expansion of capabilities in deliberative democratic processes

Human development is a process of enlarging the choices for all people, not only for one part of the society (United Nations Environment Programme [UNEP], 1995). For empowerment, an equal voice and participation in development is critical.¹² According to Sen's capability approach, people should make their own list of collective valued capabilities, as each person belongs to a social system, in a deliberative democratic process (see Section 2.6.5 and Section 3.6.4). Overall, the emphasis of these processes is on self-evaluation as a guide to identify which capabilities are important; in other words, what people aspire to (Gasper, pp.343-348). Most importantly, capability is the expression of what people would like to be and do, and so cannot be defined by the 'powerful' groups, social freedom being a process of engaging with power relations. According to Sen, freedom includes a person's ability to systematically get what he or she would choose no matter who actually controls the levers of operation. A crucial aspect of my study was to create the mechanisms for participation allowing the space for people to deliberate, negotiate and decide which valuable capabilities are needed in the form of a local water and land forum or network by engaging and enhancing the critical and reflexive competence that emerges from such a process in relation to their activity of securing household food, water security and well-being.

Human development is not only about how to make a choice that is relevant to a context in relation to collective aspirations and capabilities but also, how these are manifested in practice. In other words, it is about what people are able to do with the resources at their disposal. Resources exist (e.g. the vegetable plants, good soil, social relations) which, through various conversion factors (such as a cohesive community of practice; a social learning process; or sustainable farming strategies), can enhance or change functionings in ways that strengthen capabilities which are broader objectives or possibilities, such as capability for life, living a decent quality of life, etc. (Alkire, 2002). This research process therefore intended to create spaces that could potentially contribute to human flourishing through enabling expression and deliberation on "people's ability to choose a life they have reason to value" (Sen, 1999) and act on it. In trying to identify what people value, it was also necessary to deal with the issue of adaptive and moulded preferences (Teschl & Comim, 2005), as well as put an emphasis on 'informed

¹² Also echoed by the Sustainable Livelihoods Framework as "engaging the community in an ongoing discussion and analysis of changes in their livelihoods over time helps people at all levels become more aware of potential and linkages" (Oxfam, 2002, p. 16).

preference', capable choice (Nussbaum, 2000) and finally, the capability in the agency senses of capacity and skills to think and act (Gasper, 2007).

This research primarily engaged with women farmers and stakeholders from selected villages in the Eastern Cape with a critical and interventionist research orientation in an attempt to define their aspirations pertaining to agriculture practices and well-being in relation to the well-being of their catchment as a social-ecological system (see Section 2.4), as well as evaluating their capability and agency towards attaining these valuable 'beings and doings'. The research therefore had an emancipatory interest through mediating a participatory process for co-constructing new knowledge and expanding capability in relation to sustainable livelihoods. The methodology proposed resonates with other forms of participatory approaches and deliberative democracy-based engagements as promoted within the Capability Approach research field and development practice, but differs in its situatedness in CHAT Expansive Learning and Transformative Agency theory, which formatively and generatively engages aspirations in a co-engaged and developmental learning process.

Based on the above research methodology, the research process and data generation methods for this study (aspirations, capabilities and empowerment) have been structured in three phases. The first two phases, Phase One and Two, were carried out over six years from July 2012 to September 2018. The final phase, Phase Three, was dedicated to consolidating findings and recommendations (refer to Chapter One).

5.2.4 The role of the formative interventionist researcher

My role as a formative interventionist researcher was primarily to provoke and support learning that led to the reconceptualisation and practical transformations of the object of the learners' activity (the women's group small-scale agricultural activity) along the expansive learning process in such way that the process was owned and controlled by the women themselves (Sannino et al., 2016) and as a form of mutual collaboration. In doing so, I introduced a series of stimulus-means, both conceptual and material, to trigger, by means of double stimulation the subjects' construction of new psychological phenomena in an active pursuit of the desired instructional goal, being the expansion of agricultural capabilities and 'freedoms'. The process allowed me to co-research and co-learn, with the research participants, observing their co-development, adoption and use of stimuli introduced in dealing with problem-solving by co-charting the ZPD towards the reconceptualisation of the object of activity. This in turn led to the

discovery of solutions to the problem and the capability learning pathways, and over time, to the expansion of the object, capabilities and “freedoms”.

5.3 A single case study with embedded sub-cases

5.3.1 Case study approach

Given the focus on critical theory and a relational ontology with interest in social change and justice in this study and the complex and qualitative expansive learning process as well as capabilities and aspirations deliberations, it seemed most appropriate to develop an in-depth single case study. A case study approach for this study allowed for meaningful and in-depth exploration and description of the significant features or phenomena of the activity system, and to make an interpretation of what is found in order to construct a worthwhile argument in relation to the relevant research literature, context and questions. A case study approach is a well-suited technique that is capable of providing a detailed, nuanced and holistic observation of phenomena (Terre-Blanche & Durrheim, 1999). Yin (2009, p. 18) defined a case study as “an empirical inquiry that investigates a contemporary phenomenon within its real-life context when the boundaries between phenomenon and context are not clearly evident, and in which multiple sources of evidence are used”. On this basis it is widely acknowledged that the findings and conclusions from case studies are difficult to generalise and should not seek to achieve representativity (Merriam, 1988). However, Flyvbjerg (2006) argued that although one cannot generalise from a case study, it seems more useful to aim for a generalising hypothesis rather than hypothesis testing and theory building. Flyvbjerg (2006, p. 235) suggested that “the advantage of the case-study is that it can *close in* on real-life situations and test views directly in relation to phenomena as they unfold in practice”. My interest in this study is not, however, to generalise, but rather to succeed in the production of context-dependent knowledge and not to necessarily prove anything. The research allows for learning something while also making the research a form of expansive learning for the researcher and the participants alike. Mukute (2010) eloquently showed how this was possible through reflexivity of the ‘intervention’ researcher, and through ethically constituted deliberative research processes (see Section 5.2.4 above on role of researcher). However, insights gained from a case study may be used to provide insight into other case studies of similar characteristics (Nisbet & Watt, as cited in Cohen, Manion & Morrison, 2011), as well as bring about change at an individual, institutional, or policy level (ibid., 2011).

5.3.2 Case study design

Bassey (1999) suggested that in conducting education research based on case study design, the boundary in terms of time and space should be well defined in order to be specific when informing key decision makers and/or practitioners. The boundary entity can also be a person, an event, or other social phenomenon (Yin, 2012). For my study I employed a single case study design with multiple embedded sub-units, which intend to shed light in the life of the participating core women. Multiple embedded case studies are also referred to as nested cases (Lotz-Sisitka & Raven, 2004; Yin, 2012); when this is the case the units of analysis are also multiple units. In this study, the main unit of analysis or activity system comprises the research participants' small-scale agricultural activity system. This study ought to shed light on the suitability of transformative pedagogies, such as expansive learning in formative intervention research, to the expansion of sustainable livelihoods capabilities, natural resource management and women empowerment of a self-constituted and informal network or group of home-based food growers located within a micro-catchment composed by two villages in the Lower Mzimvubu catchment in the Eastern Cape province. The study required an in-depth perspective into the complexities of the aspiration-practice relationships with the group. Additionally, the study also aimed to get a more in-depth understanding on the effect of the collective capabilities developed from the learning endeavour on individual women in navigating within a complex terrain of intra-household, broader social dynamics and power struggles. As a result, the study also sampled ten households (sub-cases or embedded mini cases) from across the two villages concerned. Figure 5.2 below represents the single case with multiple embedded cases employed in this study. The outer layer depicts the micro-catchment boundary or planning scale where the two participating villages are situated within the wider sub-catchment of the Mzimvubu river catchment. This boundary, as discussed in Chapter Two, serves as the minimum planning scale for catchment or watershed integrated planning and management. Detailed descriptions of the main activity case study and individual sub-cases are presented in Chapter Six.

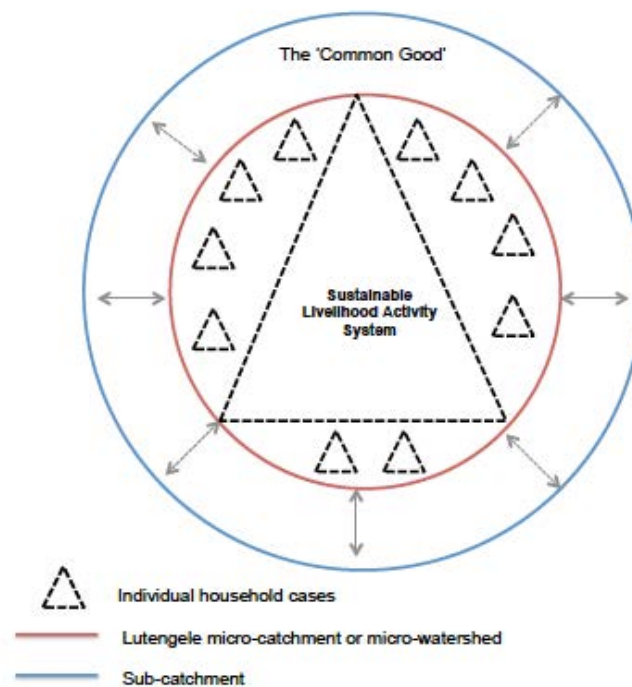


Figure 5.2: Case study with embedded individual cases within the boundaries of the Mzimvubu micro-catchment comprised by the Lutengele villages

In CHAT terms, the case study approach, with the use of multiple methods and epistemologies, permitted gathering data and developing a fine grained socio-cultural and historical description of the study context and activity system, as suggested in social learning research (Rodela, Cundill & Wals, 2012). The descriptions, in the case of this study, also comprised of the mediating power of informal institutions on gender power dynamics at the societal plane as well as intra-household domain. In presenting the findings of this study, I have used thick descriptions to allow events and situations to speak for themselves rather than make my own interpretations and judgements of the context and the research participants' lived experiences or thoughts and feelings for a situation (Cohen et al., 2011). Lastly, since the research is based on formative interventionist research, which incorporates the method of change laboratory workshops (see Section 5.5.7), a case study approach was also considered well suited.

5.4 Research process

5.4.1 Choosing the study site and participants

The selection of the case study was purposely and strategically informed by the research aims associated to the Water Research Commission (WRC) project that commenced in 2012 with

completion in 2015 within which this study fell (Phase One of this study) as explained in Chapter One. The WRC project aimed to undertake research work into women's empowerment in relation to productive use of land and water resources in three sites in the Eastern Cape. The WRC project was set up as a response to address rural and agricultural development challenges in South Africa. This study focuses on one of the WRC research cases – the Lutengele villages of Port St Johns, OR Tambo district (refer to Figure 2.1); an additional extension phase (Phase Two) fell outside the ambit of the WRC project comprising of an expansive learning process with the women farmers group or network until 2018 (see study phases in Table 5.1 below). The criteria for site selection was developed by the WRC research team as follows (WRC progress report, 2011a), with elaborations from this study site selection to my role, experience and engagement:

- i. *Prior working relationships:* Good prior working relationships between research and communities facilitate progress in reducing the start-up time with the community; the engagement is built on a platform of trust; the risks of unexpected community situations developing is reduced because both parties are known to each other; and the research is able to assess local dynamics more accurately and thereby better manage expectations. I had already developed constructive relations in the Lutengele villages as a result of my interactions as a NGO practitioner (see Section 5.4.2)
- ii. *Contextual information:* The research effort is greatly improved when existing contextual information is substantive and available. As mentioned, I was familiar with the contextual characteristic of the research site from my interactions as a development practitioner in the area which commenced in the early 2000s.
- iii. *Logistical considerations:* Travel time and distances significantly impact on research budget. In addition, sites that are close to the research are quicker and easier to respond to than distant sites and can be visited more often. Where community relationships are strong, local accommodation and security arrangements can also be made which enhances the safety of researchers, particularly women who would at times be travelling and working alone in the field. The Lutengele villages were 330 km from my residence.
- iv. *Existing agricultural activity:* Technical feasibility regarding existing agricultural activity and/or the availability of arable lands. The project aimed to get insight into women's aspirations in relation to food production, and thus presupposed that there would be women who were interested in field or garden food production. The presence of some agricultural activity in the participating villages was considered an indicator that at least some members of the community were likely to want greater access to land and water.

The formation of women farmer networks and agricultural knowledge sharing was also indicative of agricultural interest and they were already involved in informal learning as part of a self-constituted knowledge and support network.

- v. *Organised community structures*: Local dynamics can undermine external initiatives, whether these are the research interventions or others, whereas stable communities with organised community structures are easier to engage with and present a lower risk of problems developing. Although the community from the Lutengele villages had presented reservations around the commitment of local government, given widespread poor service delivery, the civil society organisations who have been working in agricultural development (such as the one I was employed by at the time) have established reputations and relationships of trust.
- vi. *Willingness to participate*: It was essential that the research participants were willing to participate in the research process, particularly as this initiative aimed to engage with power dynamics within the household as well as in the broader community.
- vii. *Relevance and contribution to development*: The context of the research site reflected a wider development situation for which solutions are being sought through this study. Engagement in this area was well aligned with ongoing initiatives in agriculture, and which had benefit to the research study aiming for increased food production.

The site selection process resulted in a case study involving a group of women farmers initially comprising approximately 30 women and a few men who willingly took up the opportunity to engage in an expansive learning process supported by an interventionist approach of change laboratory workshops with a good chance of meaningful results. My motivation to conduct this study with this group was driven by the long-term relationships developed in the area and the desire to support potential and desired transformations with the women involved, as well as my interest in the aspects pertaining to the main activity of engagement in contexts of this nature.

Women from individual households were invited to participate in this study to share their individual stories as outlined in Section 5.3.2 above, as well as to be part of the collective expansive learning process. The rationale for adopting the two units of analysis were that an analysis at household level would add perspective and potential mirror data and insight to the way farming was conducted in different households within the context of their engagement in an expansive learning process with the women's group; the household or home-based agricultural capability and aspirations were affected given the differences and similarities regarding access

rights and agricultural practices in the context of household resources. Secondly, an intra-household analysis was found valuable in that it provided a platform to collectively consider gendered responsibilities, dynamics, opportunities and constraints that shape the day-to-day lives of the women within the domestic sphere (Walker, 2011) and their potentiality to shape what they can do, be or become. At the level of the household as the second unit of analysis, the ten participating households were selected on the following basis:

- i. *Willingness to participate*: A sample of case study participants at the level of the household unit who would be willing to be engaged in in-depth research for a number of years of the study in relation to their shared object of activity.
- ii. *Interest in food production*: Due to the fact that a priority objective was to explore aspirations with regard to food production, it was important the participating women had real interest in crop production. Being agriculturally 'active' was defined as having engaged in crop production (in gardens or fields) in the previous year.

A more detailed description of the participating households is presented in Chapter Six, Section 6.3.

5.4.2 Negotiating access

Given my longstanding relationship in the research location through the various environmental education and development projects that I personally managed and implemented in the area during my employment as an NGO practitioner, negotiating access for conducting field research was not difficult. On the contrary, the research team as a whole was welcomed by the local traditional structures as well as the residents or community members from the two participating villages. Despite the favourable relationships already established prior to commencement of the research project in 2012, I formally introduced the project to the senior traditional leader (chief) of the area for various reasons. On the one hand, it is accepted protocol that any development project of any kind, either involving material inputs such as infrastructure development or conceptual input (e.g. capacity development initiatives) is introduced to the relevant levels of local leadership, including research studies. Secondly, there was a need to clarify what the research project entailed, iron out potential expectations that go beyond the project core focus and scope, as well as to indicate the project's ethical consideration and protocols when engaging with both human and non-human environment in their area. Lastly, it was important to gain the 'blessing' from the traditional authorities to move freely and safely within their geographical area of authority and leadership.

At the start of the WRC project, I introduced the study to the senior traditional leader and his traditional council at the Royal House in the presence of other village members from the wider area. Local protocols were observed and followed. Being a female researcher accompanied by two other women (an interpreter and local resident/gatekeeper), it was not considered respectful of local culture and traditions to present ourselves without the company of a male member of the community, so we invited a well-respected member from the Lutengele villages to accompany us. Subsequently, the study was also formally presented to the headman of Lutengele as well as the sub-headmen from the villages involved, namely Tyityana and Qoboshendlini. The study was presented as an opportunity for the researcher and the participants to engage in a co-learning and the co-development process with future possibilities for the improvement of local sustainable food production practices as a joint endeavour. Two village meetings took place for this purpose with a large number of attendees. The ward councillor was also informed about the aims of the study via the traditional authorities.

5.4.3 Phases of the study

The merit of any particular research design is inherently embedded in the nature of the research question to be addressed. This work adopted a multi-phase design. In a multi-phase design, research activities are carried out in sequential phases. This project was an empirical study aimed at investigating and reporting on contemporary phenomena studied in their natural settings with the multi-phase design as follows – first, deciding on suitable case study site in 2012 (Section 5.4.1 above), followed by research process comprising of three phases (see Table 5.1 below): Phase One – Investigation phase (Chapter Six); Phase Two - Expansive learning (Chapters Seven and Eight); and Phase Three - Synthesis (Chapter Nine). Data was generated in the first two phases of the research process.

Table 5.1: Summary of research phases and activities

Phase One: Exploration and Investigation (2012 – 2015) <i>WRC Research Project</i>	Phase Two: Expansive Learning (2016 – 2018) <i>Interventionist Workshops</i>	Phase Three: Synthesis (2019 – 2021)
· Socio-cultural and historical analysis · Understanding systemic view of the agricultural activity system and individual households · Identifying and prioritising agricultural goals and aspirations (valued functionings) · Investigating current agricultural capability and underlabour 'structural' tensions and contradictions · Defining women's perception of empowerment and well-being · Understanding women's division of labour · Consolidating strategic recommendations for agricultural capability expansion and empowerment	· Situating agricultural activity and aspiration in social-ecological well-being · Defining scope (spatial, actors and stakeholders) for engagement in the learning process · Further analysis of agricultural capabilities and dissonances · Modeling and examining novel solutions · Implementing and reflecting on co-developed solutions · Consolidation of some solutions into practices leading to capability expansions and new aspirations	· Describing and synthesising the relationship between the expansive social learning process and capability expansion
<i>Research Question 1</i> <i>Goals 1a, 1b and 1c</i>	<i>Research Question 2</i> <i>Goal 2a and 2b</i>	<i>Research Question 2</i> <i>Goal 2c</i>
Chapters 2 and 6	Chapters 2, 7 and 8	Chapter 9

5.4.3.1 Phase One: Investigation into agricultural capabilities and aspirations (2012 – 2015)

Phase One (Chapters Two and Six) responded to the first research question and supporting research goals:

What tensions and contradictions in the aspiration-practice relationship shape household food security in the women farmers group in the Lutengele area?

- *Describe and analyse the household food production activity system of the women farmers group, with particular emphasis on the relationship between women and land, water and power-knowledge relationships (goal 1a);*

- *Identify aspirations of the women farmers group relevant to local household food production and sustainable livelihoods (goal 1b); and*
- *Surface and analyse tensions and contradictions in the activity system to better understand the aspiration-practice relationship, and to inform expansive learning and capability development processes (goal 1c).*

Step One of the expansive learning cycle (see Figure 5.1 above) focuses on understanding the situational/contextual factors of the research participants by means of understanding the interrelationship between the different factors within and across the activity system based on historical, as well as ethnographic type evidence and contextual data. Phase One of the study provided the context and historicity required to develop a systemic view of the main activity system and related sub-activities or households. A case study allows for different data collection and data analysis methods to be employed. From observations, focus group discussions, semi-formal interviews and document analysis, I developed a contextual characterisation of the activity system researched as well as the individual households sampled, which provided a form of 'baseline' information on the research site and context. Part of this involved describing and analysing the socio-historical and cultural context (e.g. how cultural and social histories may be influencing women's empowerment) from the point of view of the research subjects including institutional arrangements, functionings and freedoms. However, throughout the research I continued to deepen my contextual understanding of the activity system through ongoing document analysis and deliberations with research participants. Engeström described activity systems as *dynamic*, not static (Mukute, 2010) and so I continued to gather additional contextual data in order to extend my understanding about "how people actually live – what do they do and are – and their freedom – what they are able to do and be" (Gasper, 2007, p. 340).

The data sources included field notes, a detailed field or reflexive journal, informal discussions, documentation, transcriptions from focus group discussions and semi-structured interviews and photographs. Coupled with this, the WRC research team also produced a large number of sources of critical data to 'paint the picture' of the activity system. These included a socio-economic survey with a sample of 53 households from the two participating villages (20% of total population consisting of 272 households from across the two villages),¹³ as well as a land

¹³ In consideration of the literature and the general context of the research sites, a sample size of 15-20% of the village homesteads was set for the socio-economic scoping survey, achieving adequate numeric and analytic representation for the purpose of the project (McAllister, 2000).

assessment, agricultural knowledge and skills audit and a water resource and use assessment. The research outputs from these sources are referenced in Chapter Six – in the description of the activity system. I used some of the raw data to supplement and triangulate the development of the individual case studies. Additionally, the WRC work also included document analysis drawing on historical documents, key relevant government policies, legislation and strategies and related literature with particular attention to gender equity and associated implications for land and water allocation reform policies for women in rural households (see Chapter Six). The methodological triangulation enhanced the validity of the study as discussed in Section 5.6.

My preparation for Phase One involved careful designing of the research tools such as the focus groups' discussion topic guides, semi-structured interview schedules and observation schedules. The instruments were circulated to the research team for comment with whom I would run a small test to make sure the research instruments were coherent. Changes were made accordingly before taking them into the study site. During this phase I also selected a range of documents to analyse in order to build up my understanding of the context pertaining the activity system in question and gender dynamics. These included, for instance, previous project reports regarding the study site, relevant development policies and strategies for the OR Tambo district municipality, World Bank reports on women in development, to name a few. A comprehensive list is presented in Section 5.5.2 below. Additionally, preparation for research activities included the acquisition of audio and photography equipment, organising village accommodation for my stay during the data gathering periods, and arranging suitable venues and catering for the meetings and focus groups. As discussed earlier, I also requested permission to work in the area from the traditional leaders. My fieldwork during Phase One included five focus groups with ten participants from the embedded cases and eighteen interviews.

As mentioned above, I used CHAT as an analytical tool to carefully analyse the activity system by revealing the interaction between the different elements of the activity system and the historical and emergent tensions, contradictions as well as dissonances. The mirror data that surfaced was used to represent and examine experiences from the aspiration-practice point of view, particularly problem situations and disturbances, but also novel innovative solutions and collective aspirations, as well as the associated processes of turning resources into functionings. The data was summarised and compiled in a form that was easy to use as mirror data by the research interpreter to generate discussions among research participants in Phase Two (Chapter Six). Mirror data was therefore taken into the expansive phase with the method of formative

interventionist or Change Laboratory workshops. During Phase One some solutions were proposed during the focus groups by the research participants; these, together with inputs from the research team and the project supervisor were reflected on and broad recommendations for agricultural capability expansion and empowerment were suggested and captured in the WRC report. The report was taken into a final reflection and feedback session with the focus group participants for the final production of the WRC report at the end of this phase. The report highlighted the need to elevate the 'sustainability' aspect of livelihoods in social-ecological systems such as river catchments (as pointed out in Chapter Two).

5.4.3.2 Phase Two: expansive – interventionist workshops (2016 – 2018).

The expansive learning phase of the study, Phase Two, responds to the second research question and goals:

Can expansive [social] learning processes shape conversion factors for turning available resources into functionings that enhance household food security capabilities and ecological well-being?

- *Collectively formulate, prioritise and describe valued functionings, resources and conversion factors necessary for improved household food security and catchment management/natural resource management (Goal 2a)*
- *Identify and describe expansive [social] learning that shape the articulation of functionings, and conversion factors that can turn resources into functionings that, in turn, expand the household food security and water stewardship capabilities – addressing aspiration-practice relationship (Goal 2b)*

Phase Two followed a Developmental Work Research (DWR) methodology to facilitate the expansive learning cycle (see Section 5.2.2 above) to allow participants to work on their object of activity, model and implement solutions to the problem situation encapsulated in the object itself, this being the aspiration for the women's group to become more productive food growers. From the mirror data surfaced in the previous phase, Phase One, the women farmers group, composed originally of about thirty people, engaged in nine Change Laboratory workshops over a period of two years and two months (from 21 June 2016 to 26 September 2018). The Change Labs provided insight into the above research questions.

Phase Two data included the following elements of the expansive learning cycle process as indicated by Engeström (as cited in Daniels, 2008, p.133): i) questioning the agricultural activity and the social-ecological interrelations to the well-being of the catchment where it is situated; ii) further analysis of the mirror data generated in Phase One and prioritisation of capabilities for agricultural expansion from the contradictions surfaced; iii) modelling an alternative way of working (expressing functionings, aspirations and capabilities); iv) examining the model to understand its dynamics, strengths and pitfalls (considering conversion factors); v) implementing the model and monitoring the processes and impact of implementation in the dispositions and actions of the group (ongoing self evaluations in context); and vi) drawing on these data to reflect on the processes and outcomes.

Phase Two involved intensive engagement with all phases of the cycle including final implementation and uptake of new more advanced practices and change in gender dynamics as observed at the end of 2018. The intervention workshops were mediated as a participatory process for self-evaluation and engagement in a deliberative democratic process for identifying collective valued aspirations, functionings and capabilities for food production activities in the broader context of catchments and natural resource management.

The initial workshop focused on a catchment visioning exercise and was followed by numerous consecutive workshops and intensive deliberations to the drafting of solutions and their implementation. Capability learning pathways were charted from this process.

The process undertaken during Phase Two is described in detail in Chapters Seven and Eight. During the mediated expansive learning process I hoped that we would nurture a 'safe space' for further deliberation, decision making and learning for the research participants to continue engaging and learning with one another beyond this study.

The Change Laboratory workshops were audio recorded for research purposes as sources of data for analysis of the workshop events. The workshops took place at peoples' homes either inside a room that could accommodate the participating group or outside in the yard. The workshops would take place in the morning starting at approximately 09h00 and ending at lunchtime. In this way, the participants had enough time to complete their morning chores and return home to prepare for the evening family duties. The number of people attending the workshop increased along the process from approximately 30 people at the start to about 75 by

the end of this phase. The workshops were organised through the local village traditional leaders or headmen and the research 'gatekeeper' or group leader. The events were facilitated in participants' local language, isiXhosa, by the research interpreter/assistant. I also captured the reflections from the workshops between the research assistant and myself in my reflective diary.

During this phase, I visited the selected households sampled to observe any change in practice, learning and empowerment as well as conducted further interviews with the participants on the value and outcome of the process.

5.4.3.3 Phase Three: Synthesis 'Model' (2019 – 2021)

The final phase, Phase Three, aimed to address Goal 2c by means of describing and synthesising the relationship between the expansive learning process and capability approach in a model. I hoped to engage in discussion with the capability-education researchers/literature and better understand what kind of learning takes place and what kind of learning interactions evolve between individuals, facilitators and institutions involved in participatory and decision making processes in their quest for prioritising valued capabilities for food production and act on them. Walker (2005) has indicated that action research is an appropriate approach for developing capabilities through education (see Section 2.6.6), but my literature searches have not shown capabilities researchers working with Engeström's expansive learning to evolve capabilities research. As shown in the discussion above, a potential key to this work is to examine the aspiration-practice relation, as it seems to not only reflect both 'valued beings and doings', but also the movement that can potentially exist between expressing aspirations, and the realisation of these in practice in formative interventions.

5.5 Research methods

5.5.1 Summary of methods

The data generation methods chosen for this study are informed by the research orientation which guides this study and the theoretical frameworks outlined in the previous sections namely CHAT and Engeström's expansive learning cycle as well as the nature of a case study approach. Therefore my data was primarily *quantitative* using a 'naturalistic approach' that seeks to understand the phenomena in context-specific settings, which produce findings, derived from real-world settings where the phenomenon of interest unfolds naturally (Patton, 2001, p. 39). This type of data was gathered by a different selection of methods such as semi-structured interviews involving selected woman farmers from the Lutengele area; focus group discussions

which took place before and between formative intervention workshops with members of the group; and observations during site visits to the households sampled. All semi-structured interviews were audio recorded. The intervention workshops and the focus groups were also audio recorded for a more reliable way of capturing data during the learning and expansive process. Although the focus group and individual interviews are independent data collection methods, their combination was advantageous as they shed complementary views of the phenomenon generated (Lambert & Loiselle, 2007, p. 230). All data generated was transcribed directly into English (with key words noted in local language for appreciation of local meaning), coded and analysed after the event. The researcher worked with the assistance of an experienced co-researcher/interpreter who was involved in the co-facilitation of the expansive learning process or formative intervention workshops, interviews and reflections. In addition to the semi-structured interviews at household level, profiles of the participating women from the selected households were developed as well as observation sheets in order to capture the sustainable livelihood practices, productive resources available and other factors. These were supported with annotated photographs and further supported by my reflexive journal for triangulation. The following sections present more detailed descriptions of the data generation methods used in my study.

5.5.2 Document analysis

Document analysis is the systematic reviewing or evaluating of documents (Bowen, 2009) and can serve multiple purposes. This type of analysis can provide context specific information such as background and historical insight of the context under research (Bowen, 2009; Yin, 2009). They can also assist with having a closer look at type of questions and field observations that should be carried out by the researcher (Bowen, 2009). The document analysis for this study drew on historical documents, key relevant government policies, legislation and strategies and related literature with particular attention on gender equity and associated implications for land and water allocation reform policies for women in rural households. As research projects do not exist in isolation, it was sensible to also draw on previous work conducted in the area of study, as suggested by Kaniki (2006) to offer historical vantage points. My knowledge of the study site, as well as the review from previous reports, assisted with good insight about where the agricultural activity evolved from, the past capacity building opportunities available to the women's group, their challenges and opportunities. Data from document analysis was also used to both augment and triangulate from other sources such as interviews and observations. Table 5.2 below outlines and describes the list of documents used for analysis.

Table 5.2: List of documents analysed

1. AGRISETA. (2010). <i>Sector Analysis: Agriculture</i> . Prepared for submission to the Department of Higher Education and Training. Available from: http://www.agriseta.co.za/downloads/news/AGRISETA_Sector_Analysis_290610-version_2.pdf
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3. Denison, J., Murata, C., Conde, L., Perry, A., Monde, N., & Jacobs, T. (2015). Empowerment of women through water use security, land use security and knowledge generation for improved household food security and sustainable livelihoods in selected areas of the Eastern Cape. Water Research Commission Report No. 2083/15. Gezina. South Africa.
4. Department of Water and Sanitation (DWS) (2014). Feasibility Study for the Mzimvubu Water Project: Legal, Institutional and Financing Arrangements. Pretoria: Department of Water and Sanitation.
5. Environmental and Rural Solutions – Conservation South Africa (2011). Umzimvubu Catchment overview. Draft Report. ERC-CSA
6. Food and Agriculture Organisation (2010). "Climate Smart" Agriculture. In: <i>Policies, Practices and Financing for Food Security, Adaptation, and Mitigation</i> . Rome: FAO.
7. Food and Agriculture Organisation (2011). <i>The State of Food and Agriculture: Women in Agriculture: Closing the Gender Gap for Development</i> . Rome: FAO.
8. Research field reports 2012 – 2015
9. NFEPA (2011). National Freshwater Ecosystem Priority Areas. CSIR
10. Republic of South Africa. Department of Agriculture. (1995). <i>White Paper on Agriculture</i> . Available from: http://www.nda.agric.za/docs/Policy/WHITEPAPER.htm
11. Republic of South Africa. (1996). <i>The Constitution of the Republic of South Africa, 1996</i> . Available from: http://www.justice.gov.za/legislation/constitution/constitution.htm
12. Republic of South Africa. (1997). <i>South African Water Services Act, No. 108 of 1997</i> . Government Gazette, 390(18522). Available from: www.dwaf.gov.za/Documents/Legislature/a108-97.pdf
13. Republic of South Africa. (1997). Department of Land Affairs. <i>White Paper on South African Land Policy</i> . Pretoria: Department of Land Affairs.
14. Republic of South Africa. Ministry of Agriculture and Land Affairs. (1998). <i>Agricultural Policy in South Africa: A Discussion Document</i> . Pretoria: National Department of Agriculture.
15. Republic of South Africa. Department of Agriculture. (2001). <i>The Strategic Plan for South African Agriculture</i> . Available from: www.nda.agric.za/docs/sectorplan/sectorplan.htm
16. Republic of South Africa. Department of Agriculture. (2002). <i>Integrated Food Security Strategy (IFSS) for South Africa</i> . Available from: http://www.nda.agric.za/daDev/sideMenu/foodSecurity/policies.pdf
17. Republic of South Africa. Department of Water Affairs (2004). <i>Policy on Financial Assistance to Resource Poor Irrigation Farmers</i> – In terms of Section 61 and 62 of the National Water Act, 1998. 29 September 2004. Available from: www.dwaf.gov.za/Documents/Policies/rpf/RPFAssistanceSep04.pdf

18. Republic of South Africa. Department of Environmental Affairs and Tourism (2008). <i>National Framework for Sustainable Development</i> . Available from: http://www.gov.za/documents/national-framework-sustainable-development-south-africa
19. Republic of South Africa. (2008). <i>Gender Policy Framework for Local Government</i> . Available from: http://iknowpolitics.org/sites/default/files/09361_f13-_gender_policy_framework_for_local_government1.pdf
20. Republic of South Africa (2011a). <i>National Climate Change Response White Paper</i> . Available from: http://cer.org.za/virtual-library/policy-documents-white-papers/national-climate-change-response-white-paper-october-2011-3
21. Republic of South Africa. National Planning Commission. (2011b). <i>National Development Plan</i> . Available from: http://www.gov.za/issues/national-development-plan-2030
22. Republic of South Africa. Department of Agricultural, Forestry and Fisheries. (2012a). <i>Review: Strategic Plan for the 2012/13-2016/17 Department of Agricultural, Forestry and Fisheries</i> . Pretoria: DAFF.
23. Republic of South Africa. Department of Agricultural, Forestry and Fisheries. (2012b). <i>The framework for the Zero Hunger Program</i> . Pretoria: DAFF.
24. Republic of South Africa. Department of Environmental Affairs. (2012c). <i>National Strategy for Sustainable Development and Action Plan (NSSD, 2011-2014)</i> . Available from: https://www.environment.gov.za/sites/default/files/docs/sustainabledevelopment_actionplan_strategy.pdf
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26. Republic of South Africa. Department of Water Affairs. (2013b). <i>National Water Resource Strategy – Water for an Equitable and Sustainable Future</i> . June 2013. Second Edition. Available from: https://www.dwaf.gov.za/nwrs/NWRS2013.aspx
27. SADC REEP. (2002). <i>SADC Regional Environmental Education Programme: Programme Document 2002</i> . Howick: SADC REEP/Share-Net.
28. Statistics South Africa. (2012). <i>Census in brief</i> . Pretoria: Statistics South Africa.
29. Statistics South Africa. (2014). <i>Poverty Trends in South Africa: An examination of absolute poverty between 2006 and 2011</i> . Pretoria: Statistics South Africa.
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33. United Nations Development Programme [UNDP]. (2006). <i>Human Development Report. Beyond Scarcity: Power, Poverty and the Global Water Crisis</i> . New York: UNDP. Available from: http://hdr.undp.org/sites/default/files/hdr_2006_summary_en.pdf

34. United Nations Educational, Scientific and Cultural Organisation [UNESCO]. (2015). <i>Education for All 2000 – 2015: Achievement and Challenges</i> . Paris: UNESCO Publishing.
35. United Nations Development Programme (UNDP). (2015). <i>Sustainable Development Goals</i> . Available from: https://www.undp.org/content/undp/en/home/sustainable-development-goals.html
36. Wildlife & Environment Society of South Africa [WESSA] Eco-School Programme reports 2005 – 2015
37. WESSA progress and final reports: WESSA Progress Report 2017 WESSA Final Report 2018
38. Water Research Commission [WRC] progress reports 2011–2014: WRC progress report 2011a (Deliverable no.1) WRC progress report 2012b (Deliverable no.2) WRC progress report 2012a (Deliverable no.3) WRC progress report 2012b (Deliverable no.4) WRC progress report 2012c (Deliverable no.5) WRC progress report 2012d (Deliverable no.6) WRC progress report 2013a (Deliverable no.7) WRC progress report 2013b (Deliverable no.8) WRC progress report 2013c (Deliverable no.9) WRC progress report 2013d (Deliverable no.10) WRC progress report 2014a (Deliverable no.11) WRC progress report 2014b (Deliverable no.12) WRC progress report 2014c (Deliverable no.13) WRC progress report 2014d (Deliverable no.14)
39. World Bank (2012). <i>World Development Report 2012 Overview: Gender Equality and Development</i> . Washington D.C.: The World Bank.

5.5.3 Focus group discussions

The focus group method is a form of group interview to attempt to get people's views on a tightly defined and focused topic with emphasis on "the joint construction of meaning" (Bryman, 2008, p. 474) – see Appendix A: Examples of topic guides. The aims of the focus groups in this study were various. These included, for example, to map the available water resources in the area; to identify the current agricultural practices and farming aspirations, and to hold discussions around more sensitive issues such as gender and intra-household dynamics and the division of labour – Table 5.3 below presents a summary of the focus groups conducted during this study. During the focus groups I compiled notes on the main points of the discussions, observed and recorded non-verbal communication and gave input into the process as it unfolded.



Picture 5.1: Focus group discussion held during Phase One of the study in Lutengele

Facilitation of the discussions was intended to be inclusive by encouraging all participants to express themselves freely and fully in a way that everyone had an opportunity to contribute to the discussion. The focus groups took place at a private homestead, with the exception of the third focus group. This was held in the town of Port St Johns at a local conference venue/resort. In general the focus groups' venues were set up in a way that participants could engage with the facilitator as well as other participants. Due to the nature of the venues, participants sat on chairs, benches and mats on the floor. This provided a relaxed and informal environment, conducive for open discussions on the issues at hand. The focus groups were facilitated by the research assistant/interpreter and other members of the WRC team. The discussions were carried out in the participants' local language, isiXhosa, and interpreted by research facilitator/assistant in English so I would be able to capture the main points of discussion and make contributions along the way.

Table 5.3: List of focus group discussions

Session and purpose	Date and Location	Audio minutes	Data source/data generation
Focus Group 1: <i>Resource Mapping and Agricultural Aspirations</i>	10-11.03.14 (Lutengele)	151' (2hrs and 61')	Notes and Report
Focus Group 2: <i>Structures and Institutions</i>	24.04.14 (Lutengele)	215' (3hrs and 58')	Notes and Report
Focus Group 3: <i>Constraints and Solutions to Farming Activity</i>	21-22.10.14 (Port St Johns)	688' (11hrs and 46' over two days)	Notes and Report
Focus Group 4: <i>Gender Dynamics, Roles and Responsibilities</i>	05.02.15 (Lutengele)	133' (2hrs and 21')	Notes and Report
Focus Group 5: <i>Broad Strategic Solutions to Farming Activity</i>	30.06.15 (Lutengele)	153' (2hrs and 55')	Notes and Report

The length of each focus group ranged between 2,5 to 3,5 hours depending on the richness of the discussions and the nature of the topic. The focus group participants were mainly the ten women selected for the individual case studies with the exception of the first focus group. This event was attended by a large number of people from both villages. Thereafter, the focus groups were reduced to a smaller number of attendees for richer discussions and participation. The consent to participate in the research study, to record discussions and take pictures was requested at the beginning of each session, following a brief introduction on the main purpose of the focus groups. Participants were given the chance to ask for clarification or to raise any objections. The focus group discussions were also useful for triangulating data with other methods and extended my perspectives on a number of topics and literature when further insights were needed. The data was recorded and after the focus group discussions this was transcribed (a total of 1 340 minutes (22,33 hours) – see Table 5.3 above).

5.5.4 Semi-structured in-depth interviews

Semi-structured in-depth interviews were used as methods for qualitative data generation in Phase One and Phase Two of my study. These types of qualitative data collection tools are useful to researchers as they allow them to explore deeply a respondent's perception and feeling on a particular issue or topic (Guion, Diehl, & MacDonald, 2001; Schutt, 2004). The interviews conducted in this study were mainly aimed at individuals; however, at times one to two more individuals would join. In that case, I would continue with the interview as planned and turn the opportunity into a group interview by posing the questions to the respondents as a whole. I

conducted a total of 32 interviews over the course of Phase One and Two. One set of interview schedules was designed to develop the individual cases of the household in order to understand their agricultural activity and practices with a focus on women and intra-household dynamics and empowerment. The list of household/women interviews is as follows (see Table 5.4 below):

- *Women aspirations and empowerment perceptions (July 2013)*
- *What women consider as the 'good life', women's roles and responsibilities (June 2015)*
- *Learning and expansion of aspirations (March 2017)*
- *Capability achievement and final reflections (Sept 2018)*

The first household/women interview tool was designed based on Alkire and Forster's domains (Alkire et al., 2013) for understanding women empowerment, agency and inclusion in the agricultural section (e.g. decisions about agricultural production; access to and decision-making power about productive resource; control of use of income; access to social groups; division of labour, etc.). These interviews were conducted in July 2013. Other individual interview tools aimed to gather deeper insights into women's perceptions of the 'good life' and aspirations (carried out in June 2015); their learning journeys with regard to their agricultural practices and challenges (data gathered in March 2017); as well as to follow up on the expansive learning, capability achievement and attainment of their aspirations (carried out in September 2018) - presents a copy of the semi-structured interview schedule. There were 29 interviews with individual women for an average of 41 minutes each making a total of 1205 minutes (20 hours) and these were transcribed. The one-to-one interviews gave me the opportunity to get to know some of the research participants (Terre-Blanche & Durrheim, 1999) and explore their perspectives regarding their lives as women in a context which is generally filled with patriarchal and hierarchical power dynamics, cultural norms and expectations.

Other interviews (see Table 5.5 below) were also designed to gain more general insights into the historicity and culture of Lutengele, changes in agricultural practice and livelihood strategies, socio-economic terrain and leadership structures (Chapter Six). Three such interviews were conducted (297 minutes). All interviews followed an ethical protocol and informed consent was given by each interviewee (see Section 5.7 below on ethical considerations).

Table 5.4: Summary of individual women interviews conducted in Phase One and Two
(Key: HH= household)

Respondent	Dates	Audio minutes	Data source
HH1	21.07.13	30'	Transcriptions
	09.03.17	30'	Transcriptions
	27.09.18	15'	Transcriptions
HH2	21.07.13	09'	Transcriptions
	10.03.17	34'	Transcriptions
HH3	21.07.13	57'	Transcriptions
	13.05.14	24'	Transcriptions
	10.03.17	50'	Transcriptions
HH4 (1)	21.07.13	46'	Transcriptions
	10.03.17	29'	Transcriptions
HH4 (2)	23.07.13	45'	Transcriptions
HH5	22.07.13	45'	Transcriptions
	13.05.14	38'	Transcriptions
	09.03.17	44'	Transcriptions
	27.09.18	25'	Transcriptions
HH6	22.07.13	56'	Transcriptions
HH7	22.07.13	48'	Transcriptions
	10.03.17	40'	Transcriptions
	27.09.18	39'	Transcriptions
HH8	23.07.13	54'	Transcriptions
	10.03.17	71'	Transcriptions
	27.09.18	32'	Transcriptions
HH9	22.07.13	41'	Transcriptions
	12.05.14	83'	Transcriptions
	09.05.17	23'	Transcriptions
HH10	22.07.13	53'	Transcriptions
	12.05.14	45'	Transcriptions
	09.03.17	57'	Transcriptions
HH Extra	09.03.17	42'	Transcriptions

Table 5.5: Additional semi-structure interviews aimed to gather ethnographic data on the Lutengele area (Key: CPI= Contextual Profile Interviews)

Interviewees and purpose	Dates	Audio minutes	Data source/data generation
CPI1: Lutengele eldest resident	05.05.14	70'	Summary notes and field report
CPI2: Qoboshendlini sub-headman (traditional leader)	05.06.14	51'	
CPI3: Lutengele headman (traditional leader)	06.07.14	176'	Notes and field report

5.5.5 Observation

In situ observations are suitable data gathering methods to capture what people are doing rather than what people are saying they do (Bloor & Wood, 2006). I found observations useful to get a first-hand understanding of, first of all, the research participants' capabilities both individually and collectively, before, during and end after expansive learning cycle. I also tried to capture how people interacted with one another during the Change Laboratory intervention so I could trace tensions and power dynamics among participants, given the fact that gerontocratic (aspect of age and status among women) differences exist in this context which affect individuals' participation and voice in public gatherings of this nature (Chapter Six). During the interviews and house visits to the participating women, I also paid attention to the changes in agricultural practices from the start of the study to its finalisation. Furthermore, whilst staying in the villages or visiting the area, I made the effort to participate in village events (e.g. going to local 'pension day' and market; evening prayers and gatherings; walks to the forest to fetch firewood; walks to the river or spring to fetch water; and simply to 'mingle' with the residents of the village). My long stays at the gate-keeper's house (sometimes up to three weeks) provided me the richest opportunity to immerse myself in the everyday life of women in this rural Eastern Cape context of Pondoland, and do what women do. The opportunity afforded me with an understanding and appreciation of the different strategies and belief systems that women draw on as mechanisms to get by and I was able to appreciate an understanding of women and empowerment in a different light. These insights were useful in the analysis of the data generated for the description of the individual case studies (Chapter Six). Observation generated different data sources ranging from pictures of each household and surroundings as well as notes in my reflexive diary. Video recording was also used to capture some of the folklore on topical aspects regarding 'women as farmers'.

5.5.5 Reflexive journal

During the course of the data gathering phases I kept notes in a reflexive journal from the observations captured during my fieldwork in the villages as well as notes from informal discussions that took place unexpectedly. The journal served as a data generating tool in as much as it allowed me to capture my own reflections of reality in terms of the events easily observable as well as the non-observable, in other words, the different layers of reality. I would use the journal to gather notes on, for instance, the discussions with the research assistant following each Change Lab (follow-up discussions), to critically analyse how each workshop unfolded but mostly, to record how people reacted and interacted with each other. Also, from a

gender analysis perspective, I noted the way in which the subjects exercised their voices in the Change Labs, hidden dynamics and reactions.

5.5.6 Change Laboratory workshops

Change Laboratory, or Change Lab, intervention sessions or workshops were the main method employed in this study. The method was carried out in Phase One and followed the cycle of expansive learning actions (see Figure 5.1 above) with the Lutengele women farmers group. The Change Labs built on data generated in the previous session by means of introducing the surfaced contradictions as mirror data for further analysis and designing of strategic plans, actions and transformations. As previously referred to, the Change Laboratory method has its roots in CHAT and its application accompanies expansive learning methodologies and interventionist research such as DWR (Daniels, 2008; Mukute 2010) and formative interventions (Engeström, 2011; Engeström et al., 1996 as cited in Sannino et al., 2016) – see Section 4.3.7 on application of CHAT in this study. The Change Laboratory method was first designed in the mid-1990s in Finland at the CRADLE (Engeström, 2011; Sannino et al., 2016) by Engeström and colleagues as a toolkit “to study the subjects’ cognitive construction and use of signs in collective and social learning processes in culturally mediated intentionality making it possible to investigate the social origins of various stimulus-means imported into a collective activity” (Eri, 2012, p. 2462), an approach that, according to Thorne (2015, p. 65) aims to cultivate ‘critical design agency’. The method has also been applied in various geographical and cultural contexts as well as academic fields with a social change transformative agenda by means of expansive learning with a rigorous research agenda (Virkkunen & Newnham, 2013; Engeström, 2015 as cited in Sannino et al., 2016). The Change Lab method has been implemented in a variety of intervention studies in work organisations ranging from hospitals and schools to factories and office settings (e.g. Engeström et al., 2007). In southern Africa, Change Labs have been successfully implemented in the fields of sustainable agriculture, natural resource management, climate change, to name a few (e.g. Mukute, 2010; Masara, 2011; Lindley, 2014; Kachilonda, 2015; Jalasi, 2018; Pesanayi, 2019; Mphepo, 2020; Mukwambo, 2021). In formative interventions, by means of a Change Laboratory method or toolkit (Virkkunen & Newnham, 2013), “the participants together with an interventionist researcher analyse the existing activity and collaboratively construct and implement a new model of the activity” (Engeström & Sannino 2010, p. 6) leading to outcomes that are not fully anticipated by the interventionist nor the participants but rather to be collectively discovered and to learn what is not yet there (see Section 5.2.4 above on role of researcher). The participatory nature of these interventions is based on

the dialogical nature and debate with agents within activity or across activities (Eri, 2012, p. 2462; Sannino et al., 2016) resonating with the ideas of deliberative democratic processes promoted by Sen's Capability Approach (see Section 5.2.2 above).

In this study the Change Lab participants were primarily women with an interest in farming who were associated with the informal group already established in the Lutengele villages. In some instances their husbands, daughters and '*makotis*' [young wife] also participated. As the Change Labs progressed, the subjects of the activity increased with new people joining in, including some men. The study was reduced to examining the evolution of transformative agency expressions and reconceptualisation of the agricultural activity as a second generation CHAT enquiry. The scope of activity, in terms of geographical reach, institutional and stakeholder participation, was defined by the subjects and confined to only their activity. It was suggested that new activity systems would come into focus at a later stage. Therefore, their decision had implications on how I originally designed the study as a third generation CHAT project. This was an important manifestation of the subjects becoming the leaders of the learning process and future direction of their activity (Engeström, 2015).

I conducted nine Change Labs over 26 months, sometimes on consecutive days and other times with a few months between the sessions (refer to Table 5.6 below). The reasons for the intervals between the workshops were various. Participants could not afford to leave their daily chores and responsibilities for more than one or two days per week. Also, the spacing from workshop to workshop was determined by the task at hand. This is, the time that the subjects of activity needed to implement their proposed solutions and be able to reconvene with insight for further reflection on the qualitative transformations of the activity experienced. Furthermore, the last sessions were dependent on the availability of the new material stimuli (e.g. trees and water tanks). The unfolding of the Change Labs contradicts, to some extent, Engeström's intervention design, which typically consists of weekly or successive sessions (Engeström, 2011). The sessions lasted approximately 2 to 3,5 hours.

Table 5.6: Overview of the Change Laboratory sessions mini-cycles and follow up discussions (Phase Two)

Session and Purpose	Date	Audio minutes	Data source
1: Questioning the current state with Contradiction #1: Sustainability	21.06.16	222' (3,7hrs)	Transcriptions
2: Agree on a shared object: Identify the collective aspiration towards the 'common good or catchment management principles in the context of this study	22.06.16	192' (3.2hrs)	Transcriptions
3: Agree on scope for collective activity: Further questioning and analysis of the local sustainable livelihoods activity system with focus on water security 'freedoms' and CMF implications	08.12.16	107' (1,7hrs)	Transcriptions
4: Analysing contradictions and prioritising capabilities	20.06.17	152' (2,5hrs)	Transcriptions
5: Modeling and examining solutions	23.06.17	208' (3,4hrs)	Transcriptions
Follow-up Session 1: Follow up on implementation and CMF formation	07.08.17	-	Notes
6: Introduction of material stimuli - trees	08.08.17 and 09.08.17	175' (2,91hrs)	Transcriptions
Mini-Cycle in Change Lab 6: RHW	08.08.17 and 09.08.17	-	Report
7: Reflection on implementation and formation of a group – questions	20.09.17	71' (1,18hrs)	Transcriptions
Mini-Cycle in Change Lab 7: Three site demonstrations	20.09.17	-	Report
Follow-up Discussion: Follow up on implementation x 2	Oct'17 to Dec'18	-	Notes
8: Introduction of material stimuli: water tanks	31.01.18	195' (3,25hrs)	Transcriptions
Follow-up Discussion: Follow up on constitution and implementation x 4	June'18 to August'18	-	Notes
9: Final reflection and consolidation	26.09.18	115' (1,91hrs)	Transcriptions

As previously described, Change Labs aim to foster transformative agency as a outcome of formative interventions (Haapasaari et al., 2014; Vanninen et al., 2015). Section 4.2 in Chapter Four defined transformative agency as different to other kinds of agency, in that transformations evolve from firstly, the collective interpretation of a shared object of activity at risk, and secondly, from the analysis of the contradictions, tensions and disagreements found within or across related activity systems interacting for the development of new solutions (Engeström, 2011). In order to stimulate participants and nurture transformative agency I employed the method of double stimulation (see Section 4.4.1).

The first stimuli was mirror data from the previous phase as the problematic situation and agricultural aspirations. In order to situate the activity in the wider well-being of the landscape or catchment, a second stimuli was introduced in the form of tasks; these were a participatory mapping activity and past-present-future timeline analysis activity. From these activities, new stimuli were developed in the form of sustainable visionary strategies or principles for the Lutengele micro-catchment, which also served as broad collective capabilities for life and living with the human and non-human world. The newly developed stimuli was interactively used with the Change Labs and expansive learning actions.

Furthermore, the contradictions surfaced in Phase One, supported with the socio-cultural and historical data, were also used as stimuli. These enabled participants to further question and analyse their activity with the instruction (ranking activity) resulting in the modeling of novel solutions in relation to the problematic situation initially introduced. The Change Labs proceeded and enabled the gradual ascending from the abstract to the concrete, a epistemological principle of formative interventions (Sannino, 2011) resulting in new concept formation (Engeström, 2011) or new forms of agricultural activity, capabilities and aspirations. A detailed description of the Change Laboratory sessions and process is presented in Chapter Seven and Eight.

In between sessions (see Table 5.6 above), participants set tasks for themselves to complete in order to action some of the solutions proposed and report back on in the following session as material for further reflection and deliberations. Other interactions took place between and within the Change Lab sessions. For instance, between session five and six, I conducted a follow-up session with a small group of research participants to discuss progress and reflect on the experimentation of the solutions (Virkkunen & Newnham, 2013). I also had various follow-up dialogues with key informants from the area as a way of reflecting on the current status of activity and emerging group dynamics. Additionally, mini-cycles (see Section 5.2.2) or content-practice based workshops took place within Change Lab session six and seven. These were workshops facilitated by external organisations with the aim of advancing the knowledge and practical skills capital of the participants on aspects related to the expansion of their agricultural capability (e.g. rain water harvesting).

5.6 Data quality

The guiding critical social science orientation chosen for this study underpinned by the ontological, epistemological and methodological assumptions, calls for high quality qualitative research with the aim of engaging in a deep understanding of the context rather than examining surface features, as well as the careful analysis of power relations with particular emphasis on gender dynamics. In an expansive learning process a study requires careful analysis and tracing of the cognitive processes and qualitative transformations of activity evolving among the subjects of activity in and out the Change Laboratory workshops. Data quality in this study has been dealt with in terms of ensuring validity, triangulation of data, member checking and consultations with 'critical friends' (see Section 5.6.3).

5.6.1 Validity

Terre-Blanche and Durrheim (1999) described the concept of validity by referring to the degree to which research conclusions are sound and/or trustworthy. It is acknowledged that developing validity standards in qualitative research is challenging because of the necessity to incorporate both rigour and subjectivity as well as creativity into the specific processes (Johnson, 1997) that are subject to interpretations of reality and observer bias. It was therefore important for me, as a formative field researcher, to immerse in the research process, thoughtfully and creatively considering all possible meanings of the data. During the data generation phases I spent time in the context of the study, especially during Phase One while gathering data to describe the activity system in detail and develop my understanding with regard to the cultural norms and historicity of the area, the evolution of agriculture in Lutengele and how these related to the gender aspects. Based on my understanding of the context I tried to avoid biased interpretations of the data through reflections with other members of the research team and colleagues and the women themselves (see Section 5.6.3), as well as by drawing on literature and document analysis sources. As a formative intervention researcher, I participated in the activities of the group, particularly in the Change Labs (Adler & Adler, 1987). Therefore as a responsible participant/researcher, observer and mediator, I made explicit my interest in the study and how my role could influence the research. New knowledge was the joint creation of the inquirer and those involved in the inquiry emerging from the Change Labs. Validity was achieved by reflexive deliberation on data through the 'mirror data' approach, ongoing member checking and discussions on tensions, contradictions, aspirations, functionings, conversions etc. in the formative interventionist workshops. It was during the Change Labs that the research participants had the opportunity to further analyse and prioritise their contradictions and discuss various

aspects of their practices and activity system and in this way, develop a form of self-evaluation capability as described by Sen's Capability Approach and deliberative processes. It was also crucial that as a researcher I developed my self-reflexivity potential and devoted attention to integrity to critically maintain research validity at each phase of inquiry. For instance, when writing up a case study, I tried to tell the story in its diversity, allowing the story to unfold from the many-sided complex, and sometimes conflicting stories that the actors in the case may tell (Flyvberg, 2006) and develop deeper understanding through drawing on the conceptual and methodological frameworks guiding this study.

5.6.2 Triangulation

Other data quality strategies were employed to ensure the trustworthiness of the research findings by triangulating data and findings drawing on multiple sources of data generated during the study. These sources included document analysis, semi-structured interviews, intervention workshops, observations and my reflexive journal, which assisted to build up the activity system, verify contradictions and capability expansion. Johnson (1997) noted that triangulation strengthens a study by combining methods leading to more valid, reliable and diverse construction of realities. Data from document analysis was used to both augment and triangulate from other sources such as interviews and observations. The formative interventionist workshops also assisted, through 'mirror data', to clarify, for instance, the level of contradictions and their role in the learning process and capability expansion.

5.6.3 Member checking

In Phase One, the analysis and findings involved various member checking stages. The data generating sources were presented and discussed with the WRC research teams at regular meetings, including the project leader. Analysis and findings of the study were peer reviewed by the WRC reference group which comprised of professionals and academics with expertise in the various fields of research and experience in similar contexts to the one of this study. I also made a presentation and shared my study at the International Capabilities and Human Development conference in Cape Town and summer school in 2017 for critical feedback. During these events, the study gained inputs from critical thinkers and academics in the field of capabilities and education such as Melanie Walker, Elaine Unterhalter and Caroline Hart. My colleagues from the Environmental Learning Research Centre (ELRC) at Rhodes University also became 'critical friends' in the interpretation of the data. The concept of critical friends refers to "critiqu[ing] another's experience by providing data and asking critical and provocative questions of each

other's work, and by using each other's feedback to provide different lenses with which to view reality" (Bozaleck & Matthews, 2009, as cited in Mutizwa, 2010, p. 147).

At the end of Phase One, the final WRC report with the research findings was presented to the research participants as a topic for reflection and further input in the last focus group. The findings were thereafter used as mirror data into the interventionist phase, Phase Two. This also allowed for further triangulation of the data as indicated in the section above. Thereafter, each formative interventionist Change Lab workshop commenced with analysis of the data generated from the previous workshop or research interaction. Both the semi-structured interviews and Change Labs were transcribed and checked by the fieldworker/interpreter involved in the study for corrections. The research interpreter was a critical source for cross-checking my interpretations of the data, especially with regard to culturally related findings, how to improve and plan for future sessions, the best approach to continue engagements, etc. Furthermore, I also tried to give feedback on the findings by sharing my interpretations of the data at each individual interview for further analysis and critique. Overall, member checking, as a process of co-engaged formative interventionist research along the expansive learning cycle, provided the main source of internal criticism.

5.7 Ethics

The first engagement with the research participants took place in 2012. The overall WRC research project was presented to both participating villages at two different community gatherings as well as the *domkhulu* (chief's or senior traditional leader's place). During these interactions, the aim of the research, process, selection of participants, intended outcomes, generic ethical considerations, etc. were presented and discussed in detail and consensus was given for this project to go ahead. However, this was not my first interaction with both village communities. I have been a regular visitor to the area since 2003. Over the years mutual trust and friendships have developed as a result of my professional involvement in the area as an NGO practitioner as well as my personal relationship with many members of the community. The trust developed in these two villages gave me the confidence to co-engage with social-ecological issues in this context particularly with respect to taking a gender focus. Both complex social-ecological and gender research require ethical procedures that take into account situated power relations, dissonances and structural cultural-historical tensions not straightforward to surface nor interpret and deal with as an 'outsider'. Due to the core transformative and transgressive nature of this social learning research project I continuously

grappling with moral dilemmas and ethical responses in the way research is methodologically designed and undertaken, data analysed and interpreted and findings communicated. Throughout this process my research study was guided by not only conscious acts, methods and procedures but also moral intuition on how to approach data gathering and analytical processes. In particular, I was careful of the manner in which to interact and relate to the participants involved, these being primarily black rural women. Over the years we have developed a 'caring for one another' approach whereby we care for each other, share mutual interest pertaining to this study, respect our differences (or multiple ways of knowing) and make sure that we are truthful to ourselves and each other.

I can confidently say that mutual respect and caring for one another has been the basis of relationships throughout the research process. I assumed the role of a facilitator/mediator of learning and new knowledge in a way that I responsibly engaged in this process together with my fellow research participants as responsible participants. I supported the emergence of self-defined empowering freedoms as a formative interventionist researcher and particularly embraced an ongoing reflexive research approach as a reflexive researcher. The following text provides a summary on how other ethical considerations to this study were taken into account and put into practice. Ethical clearance for this study was also obtained from Rhodes University in 2017 with permission backdating to the start of the research process in 2012 (see Appendix B: Ethical Clearance Approval).

5.7.1 Voluntary participation and freedom to withdraw

The research participants were selected based on their willingness to participate voluntarily in the study (see Section 5.4.1 above on selection criteria). Participants had the freedom to withdraw from the study at any stage in the process. Before any research interaction, I emphasised the voluntary nature of their involvement to make sure that everyone was content and willing to continue with their contributions and interactions with the researchers as well as with other members of the farmers group.

5.7.2 Respect and dignity

The participatory nature of my interventionist research project, via expansive learning processes, took into consideration matters of respect, recognition and the interests of individual participants. Each individual, as well as the community they belong to, was approached in a

manner that was culturally acceptable and respectful. Each individual, no matter their socio-cultural or economic background, was treated with dignity at all times throughout the research process. The study and data gathering interactions were conducted on the principle of non-maleficence (Macklin, 2002) to ensure no research participant would face any direct or indirect harmful consequence derived from the study. In addition, I was very conscious about the positive benefits that the study, as a result of the transformative pedagogies and interventionist nature, could bring about and that some direct benefits could be materialised by the end of the process.

5.7.3 Transparency and honesty

Prior to the study I introduced the purpose and intention of the research project to both village communities, their traditional leadership and the individual women farmers involved in a way that it was understood and translated into their local language, questions were answered and approval to continue in the area was provided. The voluntary nature of participating in this project was emphasised at the beginning of the process and continuously reinforced over the years. I also dealt with expectations from the start and at various focus groups, community interactions and individually. I was very aware of how my previous role as a development practitioner had the potential to bring about false expectations so I carefully made sure that these were dealt with during each research interaction.

5.7.4 Accountability and responsibility

Securing informed consent refers to “the knowing consent of the individuals to participate as an exercise of their choice, free from any element of fraud, deceit, duress or similar unfair inducement or manipulation” (Berg, 1998, p. 47). Consent was requested in the form of verbal agreements (and audio recorded) from various levels of leadership and individuals. As mentioned earlier, I gained consent to carry out research from the senior traditional council, as well as from the Lutengele headman or traditional leader. Consent was also granted at community village level and from the sub-headman from the participating villages. I also had consent from the women farmers group leader and group members as well as from the individual women who participated in the development of the individual case studies. Consent was re-negotiated on an ongoing basis in order to respect the willingness to participate in this process and reiterate the purpose of the research activities. Permission to record interviews, usage of video cameras and photographs was also requested on an ongoing basis.

Confidentiality and privacy was respected at all times as well as anonymity if requested. However, participants approved the use of their real names and photographs in the research thesis. Video data and photographs will be used for analytical and reflection purposes only, and will not be more widely distributed or used.

5.8 Data analysis

Data analysis consists of constructing new ways of seeing reality, ways which are as unexpected as they are convincing (Somekh & Lewin, 2011). Data analysis involves the process of making sense of the data. This is a process of consolidating, reducing and interpreting the data gathered during the phases of the study (Merriam, 2009). The analysis in this study was carried out based on a phased analysis approach in that data gathered for each study phase (see Section 5.4.3) was analysed simultaneously and required different modes of inquiry at different stages of the study (Miles & Huberman, 1994). Phase One consisted of constructing the context of activity and case study narratives, including the individual embedded cases (Chapter Six); Phase Two entailed the detailed description of the expansive learning cycle, reconceptualisation of the object of activity and transformations (Chapter Seven and Eight); and Phase Three considers the mutuality reinforcing attributes of expansive and social learning pedagogies and the capability approach (Chapter Nine). A more intense analysis of the data corresponded to Phase Two, the expansive learning process. Data generated from the first two phases was taken into the final phase of the study.

5.8.1 Data management

Data generated from the interviews (Phase One and Two) and interventionist workshops (Phase Two) was transcribed from isiXhosa into English with annotation on significant local language words in order not to lose meaning from the interpretations of these words or expressions. All data sources were organised and managed in a way that I would be able to track data from each research encounter and develop case records accordingly. To facilitate the analysis based on thematic codes, I indexed all data sources; these included the focus group discussions, interviews, Change Lab workshops, follow-up sessions, follow-up discussions, observations and reflexive journal. The data index coding for each data source is as follows:

- Individual household interview (IHH and year - e.g. IHH1_14)
- Contextual profiling interview (CPI - e.g. CPI)
- Focus groups (FG - e.g. FG1)

- Change Laboratories (CL), number - e.g. CL1. CL was also coded by significant respondents when appropriate as L for leader of the group (CL_number_L); M for male (CL_number_M) and Y for 'young women' (CL_number_Y) and F for facilitator (CL_number_F)
- Follow-up Session (FS) and number - e.g. FS1
- Follow-up Discussion (FD) and number – e.g. FD1
- Reflexive Diary (RD) and date of entry - e.g. RD_12.05.14
- Pictures (P), theme and date of entry. Theme codes were HH1 for household, CL1 for Change Lab and G for general - e.g. PHH1_12/05/14; PCL1_13/05/14, etc.
- Household Observation Schedule (OBHH and number – e.g. OBHH1)

5.8.2 Analytical Framework

5.8.2.1 Modes of inference: Inductive, abductive and retroductive

The study draws on a critical realist analysis framework (Danemark, Ekström, Jakobsen, & Karlsson, 2002) based on inductive, abductive and retroductive modes of inference. A critical realist framing resonates with the transformative and emancipatory agenda of the study by assisting to identify and explain the causal mechanisms inhibiting gender justice and agricultural capability in a search to seek solutions for problematic situations beyond the empirical level. *Induction* refers to a mode of inference that involves a researcher to cluster data from a number of observations into categories and seek for similarities and relate them to each other (ibid., p. 80). *Abductive inference* (ibid.) is a way to interpret and reconceptualise individual phenomena within a conceptual framework or set of ideas, in other words, drawing on theoretical framings as lenses to make sense of and reconceptualise data. The theoretical lenses employed in a study provide guidance in ascribing meaning to an event in relation to a larger context and in this way, help to understand something in a new way and expand our conceptual framing. "Social scientists do not discover new events that nobody knew about before. What is discovered is connections and relations, not directly observable, by which we can explain already known occurrences in a novel way" (ibid., p. 91). *Retroductive analysis*, on the other hand, is concerned with establishing explanations of what must be the case for things to be the way they are by finding the explanatory principles and causal mechanisms often relying on examining the historical and contemporary structural issues for their explanation (ibid.). Danmark et al. (2002, p. 85) emphasised that modes of inference are complementary as from the different inferences one can arrive at a new knowledge of reality beyond what is evident. Mukute (2010) made

reference to Bhaskar (1998), Sayer (2000) and Benton and Craib (2001) who provided an ontological framing that permits one to delve beyond the current and the surface into the history and the underlying to find “real reality” that lies beneath the empirical and the actual. By employing the three modes of inference I was able to narrate, explain and synthesise the move from the women farmers’ sustainable agricultural aspirations to their capability expansion and empowerment via the process of interventionist research.

5.8.2.2 Phase One: Contextual and gender analysis and the surfacing contradictions

The analytical process in the study commenced in Phase One to respond to the first research question: *What tensions and contradictions in aspiration-practice relationships shape household food security and ecological health in the women farmers group in the Lutengele area?* The first step of this process involved the analysis of various sources of data in addressing research Goal 1a: *Describe and analyse the household food production activity system of the women farmers group, with particular emphasis on the relationship between women and land, water and power-knowledge relationships.* These included documents such as project reports, field reports and focus group reports and notes. Other sources included the transcriptions from the individual and contextual interviews, pictures and observations and reflexive notes (see Appendix C : Example of transcription from individual interview). Based on an inductive mode of inference, this first layer of analysis allowed for a deeper understanding of the socio-cultural, historical ecological and political dimensions of the context of study and evolution of agricultural practices to date and insights into gender equity. With the contentious analysis pertaining to gender analysis in agriculture livelihoods and more specifically the gendered dynamics and cultural norms in the Eastern Cape province, I drew on relevant literature in order to not only develop the normative understanding of these issues, but also to illuminate them by correlating the literature findings with the data. The data was manually coded¹⁴ and categorised by theme in order to construct the wider context of the activity system. The second layer of analysis, drawing on second generation CHAT, I proceeded to flesh out the different elements of the central activity under inquiry (see Chapter Four, Section 4.3.3.2 on elements of activity) in order to develop a systemic view of the agricultural activity and surface contradictions. The analysis was conducted to respond to research Goal 1c: *Surface and analyse tensions and contradictions in the activity system to better understand the aspiration-practice relationship, and to inform expansive social*

¹⁴ Data coding refers to the means of organising material into categories and labelling the categories before bringing meaning to the data in preparation for analysis (Merriam, 2001, Creswell, 2003; Maxwell, 2009 as cited in Jalasi, 2018).

learning and capability development processes. Additionally, from the WRC raw data (livelihoods strategies, water resource use and knowledge and skills surveys) together with the transcriptions from the individual interviews, focus groups and observation sheets and pictures, I constructed the individual cases of the ten participating women. The analysis was guided by an abductive mode of inference framed by ideas drawn from the Capability Approach, aspirations literature and gender justice (Chapter Three). In this way I was able to firstly develop a baseline of the individual women's aspiration-practice in relation to: agriculture productivity, well-being, intra-household dynamics, access to productive resources, decision-making power, division of labour in the household activities (including food production), 'triple burden' and 'freedoms' and thereafter; follow their unfolding along the interventionist phase of the study (research *Goal 1b: Identify aspirations of the women farmers' group relevant to local household food production and sustainable livelihoods*). Findings from these analytical processes are presented in Chapter Six.

5.8.2.3 Phase Two: Intensive analysis of Expansive Learning

Phase Two comprised an intense analysis of the expansive learning process in search to answer the following research question and associated goals:

Can, and if so, how can expansive learning processes shape conversion factors for turning available resources into functionings that enhance household food security and catchment management capabilities?

The analysis required an understanding of the move from agricultural aspirations to capability expansion and women empowerment (as freedoms) through the process of formative interventionist research with an expansive learning cycle. As a result, given the nature of expansive learning methodologies and principles, I drew on Sannino's (2015b) Vygotskian double stimulation model and Haapasaari et al.'s (2014) transformative agency analysis in order to map the movement from aspirations to capability expansion via germ cell abstraction (Sannino & Engeström, 2017). By building on Phase One, the identified contractions were further analysed in the initial Change Labs and formulated into valued capabilities. This process required an inductive analytical step by which socio-cultural and historically developed contradiction were clustered as possible functionings of a sustainable agrarian activity or farming system (e.g. being water secured; having access to labour; accessing the value chain, etc.). As a result, the women farmers group was able to *collectively formulate, prioritise and describe valued functionings, resources and conversion factors necessary for improved household food security and catchment management/natural resource management (Goal 2a)*. The study's analytical process proceeded by tracing the re-conceptualisation of the object and activity (both at the cognitive and

material plane), the learning actions of the research participants (drawing on Engeström, 2008) and the catalytic effect of introduced new and material stimuli on accelerating sustainable agricultural capability expansion in a context filled with structural poverty, climate risks, vulnerabilities and gendered dynamics (with Sen's ideas of development, capability and agency). This abductive analytical section responded to *Goal 2b: Identify and describe expansive [social] learning that shapes the articulation of functionings, and conversion factors that can turn resources into functionings that, in turn, expand the household food security and water stewardship capabilities – addressing aspiration-practice relationship*. The findings from this process are presented in Chapters Seven and Eight and they were primarily based on the data generated from the Change Laboratory workshops, follow-up sessions and discussions, individual interviews, observations and my reflexive journal.

5.8.2.4 Phase Three: Model

Phase Three, the final analytical stage, synthesised the findings derived from Phase One and Two in order to *describe and develop a synthesis 'process model' that illuminates or illustrates the relationship between expansive learning and the capability approach*, Goal 2c of the study. In this phase I used both retroductive and adductive analysis by drawing from Robeyn's model on the representation of a person's conversion factors to turn resources into functionings or achieved capabilities, as well as the ideas pertaining collective capability (Ibrahim, 2006, 2013), and furthermore, the deliberative democratic processes promoted by the Capability Approach (Nussbaum, 2006) in identifying valued capabilities and acting on them. These assisted to situate and thereafter synthesise the potential role of transformative pedagogy of expansive learning in the movement from aspirations to capability expansion and in turn, the empowerment of the women involved in the study (Chapter Nine).

5.10 Conclusion

In this chapter, I have discussed the methodological framing relating to formative research interventions based on Developmental Work Research and expansive learning. The chapter proceeded by introducing the research design with a case study approach. The chapter has also described the data generating methods for the different research phases to respond to the research goals set out for this study, the selection of research participants, and the techniques used to validate data and ethical considerations. The chapter concluded by providing an account of the three phases of analysis drawing from CHAT and the Capability Approach to human

development. The next chapter, Chapter Six, corresponds to the findings generated in the exploratory phase of the study (Phase One) which was embedded in the WRC research project. This chapter provides a detailed description of the activity system and individual women case studies with emphasis on context, learning and gender.

CHAPTER SIX: DESCRIPTION OF THE FARMING ACTIVITY SYSTEM IN THE MSIMVUBU CATCHMENT

6.1 Introduction

This chapter seeks to respond to the first research question of the study by describing the case study of the women's farming activity and accounts of the ten individual participants (see Section 1.3).

What tensions and contradictions in aspiration-practice relationships shape household food security in the context of catchment management of the women farmers group or river forum in the Lutengele area?

- *Goal1a: Describe and analyse the household food production activity system of the women farmers group, with particular emphasis on the relationship between women and land, water and power-knowledge relationships;*
- *Goal 1b: Identify aspirations of the women farmers group relevant to local household food production and sustainable livelihoods [and ecological well-being of the catchment area – in Chapter Eight];*
- *Goal 1c: Surface and analyse tensions and contradictions in the activity system to better understand the aspiration-practice relationship, and to inform expansive social learning and capabilities development processes.*

The description of the case study is in line with second generation CHAT and includes a careful description of the context of activity in view, including the agricultural and well-being aspirations of the farmers group as an intrinsic and instrumental motive for engaging in activity and learning. The chapter also surfaces the ethical-political dimension of the object of activity reflected in the analysis of historicity and culture as well as the emergence of the systemic contradictions found in the activity. This chapter corresponds to Phase One of the study and draws on various sources of data which included focus groups, interviews, observations and document analysis, the latter being used to correlate the data and articulate the more contested and complex gendered and generational aspects of 'power' over agricultural livelihoods and women empowerment in this context.

The chapter starts by presenting the Lutengele villages' socio-cultural, socio-economic and natural context in which the activity is situated. This section, Section 6.2, emphasises the critical need for sensitising the mediating role that culture, norms and traditions, coupled with socio-political events, have on women's social relations within the household, the women's group as well as with the broader social sphere as these pose constraints to women's engagement in food

production opportunities and their motive for engagement in activity in the context of this study. Section 6.3 presents an overview of the evolution of the agricultural practice in the Lutengele area and agricultural aspirations (Section 6.4) followed by a synthesis of the activity with a CHAT framing in order to systemically analyse the contradictions within this activity (Section 6.5). The individual cases are thereafter described by presenting the changes undergone by the ten women participants throughout the expansive learning process in relation to their agricultural aspiration-practice, intra-household dynamics and identity (Section 6.6). Finally, Section 6.6 concludes with the analysis of the cultural-historically developed contradictions found in the activity system as stimuli to take into the Change Laboratory workshops in Phase Two (Chapter Seven and Eight).

6.2 The Lutengele villages

6.2.1 Location

The area of Lutengele is positioned in the Mzimvubu River valley (Mzimvubu Lower Catchment – see Section 2.2) near the town of Port St Johns in the so-called area of Pondoland on the northern coastal area of the Eastern Cape of the Wild Coast. Port St Johns is situated at the mouth of the Mzimvubu River, and is the Wild Coast's largest coastal urban settlement and economic hub for the area. The Port St Johns Local Municipality, in which the Lutengele Villages are located, has a population of 152 000 people and falls under OR Tambo District (Umhlaba Consulting Group [UCG], 2011, p. 28). The two villages involved in this study fall under the Lutengele area and are located approximately 20 km upstream of the river mouth. These two rural amaMpondo villages, Qoboshendlini and Tyityana, are next to each other alongside the Mzimvubu River. The villages are about 90 km from Mthatha and about 330 km from East London. Pondoland maintained a relative degree of psychological independence from colonisation and subsequent apartheid domination because of the inaccessibility of the terrain and the historical absence of roads in the steep valleys (ibid., p. 15). The two villages have maintained a traditional village set-up and were part of the former Transkei homeland area. Infrastructure in this area is generally poor, with un-surfaced roads deteriorating as one gets closer to the remote area of Lutengele. Government maintenance is sporadic and heavy rains affect accessibility to the villages (ibid., p. 29). The geography of the area is characterised by hilly grassland terrain rolling into deep-cut, forested river gorges. The Lutengele villages are situated in the T36B quaternary catchment with a relative higher rainfall zone of South Africa adjacent to the east coast, and with a characteristic sub-tropical climate with an average annual

rainfall of 1029 mm (85 years, monthly data set). The rainfall pattern is uni-modal with a wet season peak in the summer (November to March) averaging 1234 mm/month, and low rainfall in the four winter months (March to August) averaging 39 mm/month (Denison et al., 2015, p. 131). Rainfed crop production in summer is thus possible and widely practised, but winter cropping would require supplementary irrigation for the months of the dry season (ibid., p. 131).

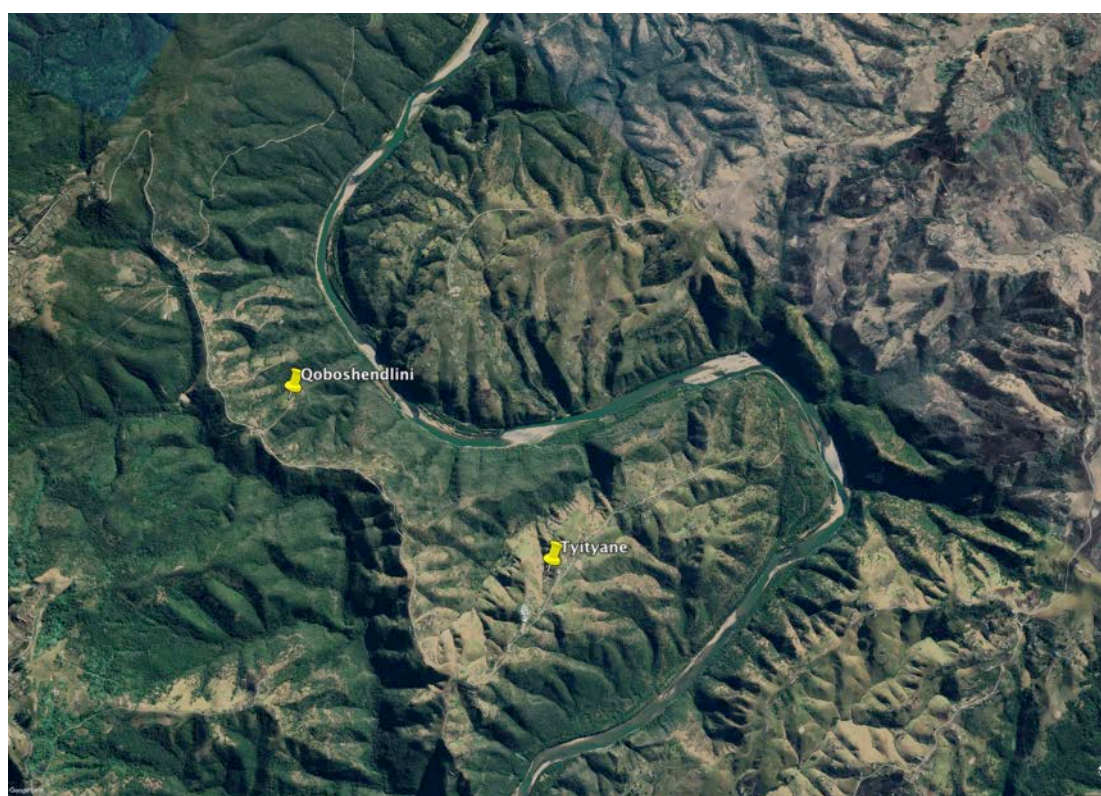


Figure 6.1: Lutengele villages location map (31° 37' south 29° 32' east) Source: Google Earth

6.2.2 Ethnicity, language, religion, cultural traditions and social norms

The people of the Lutengele area belong to the amaMpondo clan (isiXhosa speaking sub-group) who have a strong and independent cultural identity, but like much of the former Transkei, are also characterised by substantial poverty. Religion plays an important part in shaping tradition and way of seeing and being in the world. The people from this area strongly believe in a Supreme Being, ancestral spirits and are often concerned with the natural world. The ancestors are the spirits of the dead of a lineage or clan (Hammond-Tooke, 1974, pp. 321-323). At the same time, their belief system and rituals for the ancestors have been influenced by Christianity. Despite the influence of westernised belief systems, traditional beliefs and practices are still widespread in this area. In the Lutengele area culture and tradition still dominate over more contemporary views of marriage and engagement. The practice of *lobola* is widely supported by

young women as well as their mothers or female elders. Marriages in the Eastern Cape are patriarchal, “with the obligation falling on the eldest son to bring a wife into the household. This son will remain at the family home as the family grows, and his wife will carry out domestic work for the entire extended family unit. Ideally, daughters will leave the homestead by marrying into other families” (Rice, 2014, p. 386). In this arrangement, *lobola* is a central component of marriage. Historically, sexual relationships between individuals were part of (subsumed) socially negotiated relationships between families, with marriages formalised through payment by men or *lobola*, the bridewealth (Jewkes & Morrell, 2010). Briefly, *lobola* involves the transfer of wealth in the form of cows – or more commonly today, their cash-value equivalent – from the groom or his family to the bride's parents. Traditionally, *lobola* establishes ties of kinship (blood relationship) and obligation between the families, but in current times; it may also be accepted as a compensation to the bride's family for the loss of their daughter's (re)productive labour dismissing the ancestral and kinship connecting value between families (Rice, 2014). According to the literature, *lobola* raises the status of a female to full *womanhood*, and acquiring a wife by paying *lobola* confers considerable status on men (Montgomery et al., 2006).

Yes, I believe that as a parent you must get something for your child more especially if she is educated. The mother of the girl feels proud of her daughter when lobola is paid. You also gain respect in your new family. If not, other makotis will laugh at you and call you names like “uGabule igumbi” meaning you took a short cut.
(Interview #IHH6_13)

Despite the status that *lobola* raises for young women, social studies conducted in the Eastern Cape present a different connotation of this tradition to one of subordination for some women. Although *lobola* is culturally acceptable by women, for a large majority this arrangement also means a *contract of ownership*, submission and dominance of the husband in the relationship to the woman (Jewkes & Abrahams, 2002). According to Rice's study, although marriage marks the transition into full womanhood, a decline in quality of life within the family arises, particularly during her early years of marriage (Rice, 2014) or the *makoti* stage. In this context, it is through marriage and entering the hierarchical family institution that married women are subject to subordination, reduction of autonomy and agency, and gender inequalities are exacerbated at considerable financial, physical, psychological and emotional cost to the female counterparts (Chant, 2007).

My mother in law relies on me. I am her second hand. I wake up early in the morning, prepare porridge and make tea, clean the house, then go fetch water, cook supper outside, clean the children and also spend some time in the garden.
(Interview #IHH4_13)

These types of marital arrangements, coupled with cultural and social norms, can place women in a trapped situation, especially when there are descendants involved:

Researcher: Do you choose to stay in a marriage even if it's not a happy one?

Woman: It is better to stay on even if it's difficult because lobola has been paid [...] if you go home you leave the children behind and the new wife or family would not treat your children well, for your kids you would do anything. (Focus group #FG4)

Other cultural rituals and ceremonies include *Iminquzo*, *Abakwetha*, *Mbeleko*, *Umojiso* and others, for which slaughtered livestock and access to maize and water for food and traditional beer preparations are important aspects of the ceremonies.

The significance of this is that culture, traditions, norms and other informal institutions commonly have a mediating role on livelihood outcomes, particularly for women. Advancing livelihoods requires depth of understanding of the underlying factors affecting women empowerment and livelihood interrelations (Scoones, 2009, p.178). As pointed out in Chapter Three, social structures and institutions generally have an important effect on people's capabilities, and in order to positively change these, it is critically important to know what they are and how they affect people's agency (Robeyns, 2005, pp.108-109). In this study, supporting the development or expansion of livelihoods capabilities through meaningful strategies and learning processes would not only require the provision of a strong asset base (e.g. water, land, agricultural skills, etc.), but also an in-depth understanding of the contextual factors that shape the institutional arrangements affecting both individual and collective agency for the achievement of acceptable or envisaged livelihoods outcomes.

6.2.3 Socio-economy terrain: Income, unemployment and division of labour

The data from the WRC study presented that 85% household income for the Lutengele villages was below the LBPL¹⁵ confirming that the economic situation in the study site is worse than the typical situation in the Eastern Cape when compared with data from the 2011 census household survey (Denison et al., 2005, p. 65). The socio-economic make-up of these rural villages is one

¹⁵ In South Africa poverty is defined variously, but the Lower and Upper Bound Poverty Line (LBPL and UBPL respectively) are widely used (STATSSA, 2014). The lower boundary requires that individuals sacrifice food in order to obtain essential non-food items (e.g. electricity, transport, air-time, etc.) and was calculated at R443 per person per month at 2011 values. The upper boundary is where people can purchase adequate food and non-food items to survive, calculated at R620 per person per month (ibid.).

of substantial poverty and high unemployment with a high rate of male migrancy to the commercial centres (WRC progress report 2011a, p. 15). Although there were some employment opportunities in the area such as the government expanded public works programmes, jobs at the schools running the feeding scheme and some informal *spaza* shops; the primary contributors to livelihoods in the participating villages depended on government grants, remittances and income generated from household food production. As alluded to in Chapter Two, food production, in contexts such as this one, is increasingly being promoted as a key response to reduce hunger and nutritional deficiencies in rural households (UCG, 2011, pp.30-31).

I farm for food consumption and sell a little bit. My aims are to eat to avoid buying everything. (Focus group #FG1_14)

In general, female-headed households are 50% more poor than male-headed households in the province, which also has the highest national unemployment, at 40% (SALDRU, 1995), and estimated higher in the rural areas, particularly for women. Male migrancy has destabilised the social make-up of the rural areas and considerably increased the pressures and vulnerabilities leading to an increase of female-headed and single-headed households. In the study site, female-headed households comprised of 53% with the household size of 7,1 inhabitants and an average of six dependents per household. Furthermore, 28% of the households in the villages had one person or more in full-time employment and 89% were receiving social grants (mainly child grants) (Denison et al., 2005, pp. 60-61). For female-headed households in this context, the disadvantages tend to be even greater than for those male-headed households and they are considered “the poorest of the poor” (Chant, 2007) as they may have less access to resources due to the inheritance practices of dependency on male heads (Tacoli, 2012 as cited in Chant, 2007) which also results in a lower uptake of technologies for women and agricultural equipment (Doss, 2013). In women-headed households, women are also subject to traditional rights, for instance, access land, reproductive overload, no financial support or unreliable support one from “absent fathers” or remittances (Chant, 2007, p. 101). Furthermore, they may suffer from poor stigma and discrimination in society at large (Focus group #FG4). As outlined in Chapter Two, gender disparities still persist despite the introduction of non-discriminatory legislation and policies.



Picture 6.1: Lutengele women preparing *imifino*

Gender disparities in this study included segregation in economic activity, gender gaps in earnings, male-female differences in responsibilities for house and care work, and gaps in asset ownership to name a few. These differences are particularly persistent and rooted in deeply entrenched social norms, culture and traditions. Women in this study were found to assume and accept their socially constructed responsibilities as the 'norm' and what is expected from them. Their roles as rural women were largely associated with family care and home production (e.g. cooking, fetching water, collecting wood, cleaning the house, etc.) as well as attending cultural community events.

I cook, clean, instil discipline to children, teach them how to clean and cook, how to behave at home and in public. (Elder woman looking after eight dependents – Interview #IHH4_13)

Everything is done by me, during the day I take care of my husband, I clean and also go to the fields. (Women living with pensioner husband and three grandchildren, Interview #IHH3_13)

I wake up early in the morning and start by cleaning the household, cook porridge for kids, work in the garden, irrigate the garden, go to fetch water, cook for people and dogs

and then late I go back to the garden. (Young mother working outside the home, Interview #IHH6_13)

Women also engage in multiple livelihood strategies with a focus on small-scale agricultural activity. During this study it was found that women's roles and responsibilities were generational and that there was a prevailing patriarchal division of labour in agriculture. However, these are dynamic and are being redefined in order to respond to household and personal needs, especially since most men have migrated to non-farming activities. Traditionally women roles and responsibilities in agricultural production primarily revolved around sowing seed, watering and harvesting, where ploughing the fields was primarily the domain of the man. Women and girls generally are responsible for fetching water for irrigation and the household, with men assisting with donkeys or bakkies (utility vehicles), from rivers and springs, particularly during the dry season. Furthermore, men are involved in managing and herding of grazing livestock such as cattle, whereas goats, chickens and pigs are the responsibility of the woman. However, due to the migration of males to economic nuclei, women and children were found to be involved in looking after the household livestock in the absence of the migrant head of the household. The excerpt below confirms the evolving nature of gendered roles as a result of the contemporary circumstances:

Yes, the livestock is no longer looked after by men only women do too, we cut poles for building kraals. Things are changing, women go wherever they want, men can't stop them. Old people attend ABET classes. (Single mother of two children staying with her mother, Interview # IHH10_13)

Yes, there are changes because women now can do the jobs that were normally done by men. For instance there are two projects in our community and women are working there doing the same job as men. (Makoti living with mother in law, Interview #IHH4(2)_13)

Other forms of livelihood strategies employed by the research participant included informal 'piece jobs' such as cutting grass, plastering, making garments, etc. In some cases, women, particularly young married women bearing children (*makotis*), are not encouraged to take employment outside the home out of 'respect' for the husband's dignity as he is perceived by the larger community as the 'breadwinner' and so women are "not being able to provide for the family" (Interview #IHH5_14). Most women have indicated that they prefer to work from home rather than entering into agricultural cooperatives. In this way they can look after their families and attend to their family well-being and community activities (e.g. preparation of food for rituals and ceremonies). These roles and responsibilities combined, namely reproductive, productive and

community roles, have been described by Moser (1993, p. 230) as the “triple burden” referring to women’s work overload.

Furthermore, even though rural South African women who perform ‘men’s work’ are generally accepted, this transition does not appear to have yet occurred for men who take on ‘women’s work’. This is evident in the growing number of women supporting men, whether with income, labour contributions or both (Chant, 2007); however, men’s participation in reproductive activities was found not socially acceptable:

Researcher: How will it be perceived if [household] responsibilities are shared [between man and women]?

Woman: It would be considered as the women using muti ‘Gomondela’ and his status drops from other men and ladies as well. The roles in the cities has started to change but not in the rural areas. (Focus group #FG4_15)

With this as the backdrop, for women, the improvement of income and employment opportunities bears many benefits. Women’s work is critical to the survival and security of poor households and an important route through which households escape poverty (UNMP/TFEGE as cited in Chant, 2007, p. 338). Furthermore, women’s bargaining power may also be manifested in their control over financial resources that in turn can directly influence household well-being outcomes and in their household decision-making. However, even when rural women are in wage employment, they are more likely to be in part-time, seasonal and/or low-paying jobs (FAO, 2011) and unfortunately, participation in the economic space has not translated into equal employment opportunities or equal earnings for men and women (World Bank, 2012). In these relatively remote villages, household food production is an important contributor to livelihoods (UCG, 2011, p. 28) suitable for women to work from home.

6.2.4 Poor service delivery and infrastructure

Infrastructure and service delivery in the Lutengele villages is very poor. The finding from this phase, Phase One, captured in the WRC final report indicated that ownership of pit latrines was 57% reflecting a dire situation which impacts on quality of life and on water pollution; in addition, veld defecation was at 25%. The report presented that “the general context of physical poverty in this site is thus exacerbated by a loss of human dignity, safety and privacy for those who still use the veld as an open latrine, particularly in the case of women” (Denison et al., 2015, p. 62). The lack of well-maintained roads and water infrastructure also restricts people’s ability to improve their agricultural livelihoods and enter the value-chain markets. This was confirmed from

various sources of data including focus groups discussions (FG1 and FG4) as well as individual interviews.



Picture 6.2: View of the Lutengele villages landscape

6.2.5 Health and welfare: Food-security, hunger and vulnerability to violence

In the Lutengele area hunger and poverty was found to be widespread in the agriculturally dependent communities of the area with 30% households going with no food for one day or more (within a period of four weeks) and 87% within a period of one year (Denison et al., 2015, p. 64). The lack of food may be seasonal with winter being the time of the year when locally-produced food in the fields and gardens, albeit a small contribution to overall livelihoods, is minimal from May to September. Nutritional security was less obvious, but perhaps with more severe social consequence, in that it disproportionately impacts children, particularly those below five years of age (SALDRU, 1995). Additionally, other health conditions such as HIV and AIDS were recognisably problematic in the rural Eastern Cape (Hosegood, Preston-Whyte, Busza, Moitse & Timaeus, 2007; Wood & Jewkes, 1997). These realities may have anchored women to their traditional roles and responsibilities of home-life to care for the ill and infirm (Hunter, 2004; Morrell, 2005). The widespread undernourishment and illnesses adds to being one of the

motivating factors for women to engage in food production in the Lutengele area, given that the percentage of Lutengele households that engaged in food production is high (see Section 6.5 below – activity system).

Other kinds of vulnerabilities were found to affect women's 'freedoms', agency and empowerment. "A clear manifestation of the lack of agency is domestic violence. Violence is the opposite of freedom – an extreme form of coercion that by definition negates agency. Women are at far greater risk of violence by an intimate partner or someone they know than from violence by other people" (World Bank, 2012, p. 20). Social studies in South Africa have been dominated by discourses on domestic violence (Montgomery et al., 2006) affecting gender empowerment in different forms. These include their bargaining capacity in order to negotiate their well-being achievement (Rao, 1997). It should be acknowledged that investigating or analysing relationships in the realm of livelihood capabilities and intra-household dynamics was challenging, especially with regard to domestic violence, as cases are often complex and culturally specific (Doss, 2013, p. 72). South Africa is a country that is notorious for its high levels of gender-based violence (GBV). The 2018 Global Peace Index revealed that South Africa is one of the most violent places in the world, ranking 38 out of 163 (RSA, 2020). A historical perspective on how these imbalances and vulnerabilities have come about to dominate the South African landscape has shed some light on my understanding of the issue.

Historians and anthropologists have long observed tensions within hierarchies of age and gender in Southern Africa and its correlation as to how colonial administrators mobilised African patriarchy to control women and youth (Rice, 2014). According to Simpson (as cited in Jewkes & Abrahams, 2002), one of the consequences of decades of state-sponsored violence of apartheid and colonialism is that physical violence has become for many people a first line strategy to resolve conflict. This form of oppression has in turn manifested itself in gender power inequalities of male control of women featuring strongly in the dominant social constructions of masculinity in South Africa as strategies of control (ibid.), This is closely connected to male notions of ownership of partners (Wood & Jewkes, 1998). Violence against women was therefore perceived as "a necessary work of social stabilisation" to keep them compliant with social patriarchal norms (Moffett, 2006, p. 138). Moffett's (2006, p. 141) work on gender and violence in South Africa noted that "acts of violence are therefore seen as necessary, not only to keep the unstable subclass of women in their ordained places, ... but to confirm and remind them of their membership in a specific community".

It was also during colonialism and the apartheid era that (black) men were generally employed in poorly paid positions, and many found only seasonal, insecure ways of securing a livelihood or spent much of their time without any form of paid work (Coovadia as cited in Jewkes & Abrahams, 2002). This has made it difficult for the majority of black African men to vest their masculinity in material or professional achievement, and has increased the likelihood of finding masculine affirmation in homo-social settings and in their relations with black women (Jewkes & Morrell, 2010). Black African women, generally without the means to be economically independent, have often been dependent on black African men and this, together with cultural practices of respect, has promoted obedience and passivity marking gender identities in some way by violence, with the man being the one in control of women (ibid.). "While the power of men is by no means established through the use of force, indeed the cultural foundations of patriarchy and processes through which it is maintained are broad and deep, and the use of violence, within limits and in particular contexts, is viewed by many, but not all, men as legitimate in pursuit of their goals" (ibid., p. 5).

This kind of patriarchal oppression may be tolerated by women due to their dependence within the relationship, fear of abandonment or loss of economic support (Jewkes & Abrahams, 2002). Women may restrain from reporting the 'controlling' injustice for fear of being disloyal to the male counterpart (Moffett, 2006) or family, by embracing compliance and tolerance of violent and hurtful behaviour. Women may find it hard to critique or exercise choice, challenge these relations, and ultimately thus they collude in the unequal distribution of gender power with men (Jewkes & Abrahams, 2002). When women do exercise *independent subjectivity* by asserting their own will, and exercising voice and autonomy they might be perceived as "asking for it"; in other words, "when women visibly demonstrate a degree of autonomy or self-worth that men find unacceptable, they are perceived as sufficiently subversive and threatening as to compel men to 'discipline' them through ... violence" (Moffett, 2006, p. 138), and at times, women who adopt or engage in acts of resistance can be marginalised and stigmatised (Jewkes & Abrahams, 2002). The findings pointed towards the direction that women still "obey" their male counterparts and elders with prevalent submissive behaviour as a form of showing respect. Leaving a husband is not an option as it reflects badly on a women's family and they risk finding themselves rejected with nowhere to go:

Researcher: Are women affected by male 'controlling mechanisms' such as violence? If so, how is this affecting you and what are you doing about it?

Woman A: Nowadays it has been better because of the law and you can open a case.

Researcher: How do they keep that control? What are women doing?

Women B: We can't even if we are in public or during the day. So when we go to bed in the evening they [husbands] will be hard on you.

Researcher: So it does still exist? Men power over women?

Women C: With the new generation the men do not have power. The women will speak back at them.

Researcher: Is it changing? Would that be young or older women?

Women C: It has to do with your background. If you have been brought up like that, you would not take it and respond.

Researcher: Is it generally something that women still fear nowadays?

Women A: It is an African culture that you should respect the men, you should be submissive and respect the men. (Focus group #FG4_15)

Another example of gender violence or execution of the masculine was identified in the study site was manifested in the form of “abduction marriage” or forced marriage known as *ukuthwala*. Forced *ukuthwala* marriage is illegal under South African law, as it is deemed a gross violation of rights to gender equity and bodily integrity as enshrined in the Constitution, yet it is not uncommon in many parts of the Eastern Cape province and can take place either with or without the knowledge and consent of a young woman's parents who sometimes secretly agree to the plans for abduction (Rice, 2014). Here, it is important to take into account the complex social field in which these marriages take place where many rural people situate the practice within the context of cultural tradition or ‘traditional’ practices often maintained through gerontocratic authority (see Section 6.2.11 below). *Ukuthwala* practices and arranged marriages still exist in the Lutengele area. This practice provided evidence that women did conform to tradition without contesting it. However, there had been cases where women managed to escape from being abducted (Interview #IHH5_14). Their vulnerability and fear of being victimised in rural contexts such as this one relate to, for instance, the lack of piped water placing women at daily risk of violence during the processes of collecting water for daily living (Jewkes & Abrahams, 2002). As victims of violence, women experience physical and psychological health problems, and in some cases death (Morrison, Ellsberg & Bott as cited in Tacoli, 2012); there are great consequences to their well-being and their families, as well as a general breakdown of the nation's social fabric.

Interestingly, in rural Eastern Cape men also find themselves vulnerable in one other important way: as targets of sorcery as a form of female retaliation. The use of *muti* (or traditional medicine) is applied as a way to control and ensure men's obedience, sexual fidelity and financial generosity, and to revenge a partner for ill-treatment (Wood & Jewkes, 1998). In engaging in informal discussions during my field visits I was informed that in the area some women were using *muti* as a means of controlling their husbands or boyfriends thus oppressing the patriarchal controlling influence affecting them. (Reflexive diary #RD_12.05.14).

Having said this, it is important to note that feminine and masculine identities change over time at different paces and with different levels of significance. A lens of gender identity provided me with a frame through which I began to understand why men and women behave the way they do, their broader struggles, aspirations, desires and needs that motivated their behaviour (Jewkes & Morrell, 2010), and most importantly, how these identities had an effect on women's access, control and consumption over productive resources and outputs and the role that expansive learning played in shifting their terms of recognition (Appadurai, 2004) – see Section 3.4.2.

6.2.6 Literacy and education

Human capital is recognised as a major factor to open up opportunities towards the productive capacity of households, economic and social well-being and it is usually measured according to the education of the head of the household or the average education of the working-age adult of the households (World Bank as cited in FAO, 2011). Education can effectively impact on productive and well-being outcomes directly and indirectly (Doss, 2013) – directly through the improvement of agricultural practice, and indirectly, as a tool to, for instance, challenge gender injustices in the home and beyond by increasing the bargaining power skills of those affected by inequalities associated with gender relations. Besides the wide belief that education and human capital is key to poverty reduction, Chant (2007) noted that education alone may not lead to empowerment nor improvement in economic activity; however, it does contribute towards capability expansion (see Section 2.6). Data from the WRC survey provided a perspective on the age and formal education of household heads. The average age of the household heads was 54 years of age. Most of the household heads were women (53%), and education levels were generally low, with 58% of household heads having Grade 4 or above, which is equivalent to basic numeracy and literacy or better. This means that 42% of household heads had less than Grade 4 and struggled with basic literacy and numeracy (Denison et al., 2015). It was also

interesting, in light of my study, that a commonly reported occupation status was that of 'farmer', suggesting that most respondents classify food-growing as a primary activity. However, it may also be the result of the reality of high unemployment, where members of households end up spending a majority of their time at home, involved in some sort of agricultural activity by default. Some agricultural training programmes have been available to the Lutengele farmer's group over the years. The details regarding these programmes are described in Section 6.3.3 below. Education, in the form of knowledge and skills, was viewed to be an empowering tool for women to step out of their current situations from the point of view of being able to earn an income and being more financially secure, and of levelling the playing-field with their partners or husbands:

Researcher: Do you think education can give women advantage to negotiate over productive resources and outputs?

Woman: If you are educated you get a better job and a good salary. If you have a good salary is like having a 'father and a mother and a husband at the same time'. You can do whatever you like. You can stand on your own. You don't need a husband! (Focus group #FG4)

6.2.7 Water resources, infrastructure and use

The Lutengele villages are located some 20 km upstream from the mouth of the Umzimvubu River. The Umzimvubu River is the last major undeveloped river in South Africa (refer to Chapter Two). The management of finite natural resources like water is often organised into a multi-tiered structure that incorporates national, provincial, municipal and stakeholder contributions into a unified model. The state as an institution is largely responsible for the creation of legal obligations related to water provision for livelihood and productive needs. South Africa's Department of Water and Sanitation (DWS) is the overarching office that oversees the formulation and implementation of policies governing water use and management. Water's inclusion in the South African Constitution as an accessible right (RSA, 1996) is defined extensively in the South African Water Services Act 108 (RSA, 1997), which outlines the national governing body's role in providing accessibility to water, appropriate sanitation standards, water service development plans, enforceable regulations related to water use, monitoring and evaluation services, financial support for water services institutions, and the handling of any other significant matters related to water management in the country. Despite this, there was no reticulated water in the participating villages. The main community water resources available in the area were reduced to natural infrastructure comprising of the Mzimvubu River and five springs (Khukhapi, Emkakatsitis, Ntshayi, Manyekeni and Nozinja). These were valuable resources serving for freshwater collection, a place for clothes washing, building material, use at cultural celebrations

and funerals and as a source of drinking water for livestock. The flow of the springs varied, with some being quite substantial (Tyityana flow = 0.5 L/s) and others, such as Emkakatsitisi spring, with almost no flow (it takes approximately 15 minutes to fill a one-litre container). During the first data generating phase, Phase One, it was established that household water was mostly collected in roof-water tanks and containers. According to the findings generated for the WRC research project, the ownership of water tanks was 58% (high prevalence is to some extent explained by the DWA-funded programmes in the area which included provision of roof-water collection tanks to some households). A number of families were recipients of 20 000 litre rainwater harvesting tanks from a DWA project (Denison et al., 2015, p. 61) – see Section 6.3 below on activity system. The average daily consumption measurements for multiple uses in the households in the wet season was 205 litres per household per day, and dry season 266 litres per household per day for multiple activities (house, domestic animals and garden). However, during water scarcity periods, production and livestock uses were prioritised over other needs in the households. 205 – 266 litres per household is lower than the Government target of 6 000 L/HH per month for Free Basic Water (ibid.). This data is of significance in this study as it portrays the challenges affecting the realisation of agricultural aspirations. In this context, water for productive use was largely limited to rainwater harvesting, although some households used collected spring and stream water in the dry season, albeit in very small quantities, given the high cost of getting the water to the gardens (ibid; group #FG1). In terms of water quality, the WRC report indicated that water in the springs was of high quality relative to river water. The Mzimvubu supply consists of huge relative volumes of water but with a high silt load. A high pathogen load is also likely given the animal pollution of sources due to springs being shared with livestock as well as being affected by human veld-defecations (Denison, 2015, p.135).



Picture 6.3: Umzimvubu River looking downstream from the Lutengele villages

Despite the fact that there was an abundance of water in the locality, water was scarce and of high value in the village itself given that the villages are located 2km from the Mzimvubu River with substantial elevation difference and the other water sources were usually unreliable, especially during the dry season between the months of June to August (Focus group # FG1) with the potential of disputes over water accessibility at the springs. Securing household water for domestic consumption and crop irrigation required considerable human energy because of the sources, which include small dams, springs, and the Mzimvubu River (located some 200-250 metres below the settlements and some 1-3 kilometres in distance). Except during the peak of the wet season, each household would typically make two trips per day to the communal water source, allocating between 1.5 hours and 3 hours per day in the dry season to water collection when the closer, smaller springs dry up and distant sources are used (Denison et al., 2015). Using the WaCD¹⁶ index as a proxy representation of effort showed, it takes 92 times more effort

¹⁶ The WaCD Index allows distance and elevation to be combined in a unitised measure to give a basis for comparison of the effort of carrying water. The higher the index, the more effort it takes to fetch water (Denison et al., 2005, p.146).

to get water at Lutengele than for a household with a yard tap – the average distance being walked as 1 500 metres with an average elevation of 175 metres (ibid.).

Additionally, climate change risks place further concerns on the resilience of woman in rural areas. “Woman will have to labour harder and longer to ensure their families have food, fuel, and water. It is known that in Africa, woman do 90% of the work gathering water and food, and children, in particular girls, often share these responsibilities” (RSA, 2011b). Some drowning events have also reported when children fetch water from the Mzimvubu River.

Limited access to, or lack of control over, a natural resource such as water may have acute repercussions on people’s abilities to maintain their livelihood strategies, as well as lead to drawn-out disempowerment over time (Denison et al., 2015). Water management is on multi-disciplinary field that demands we understand the key issues and concerns including the wide range of users, ecosystem health, and livelihood ethics (Grafton & Hussey, 2011). In this context, integrated catchment management or watershed development approaches, based on water-harvesting methods, provides a framework geared towards increased food production, environmental integrity and equity at large (Chapter Two).

6.2.8 Land tenure and land use

Land in the former homelands of South Africa, including the former Transkei area, is held under the communal land tenure model. The term ‘communal land tenure’ is invariably used to denote African traditional or indigenous systems of land rights and access. Traditional land tenure systems involved clearly defined individual land rights, for instance, arable and residential plots, and group rights such as grazing lands and forest (Cousins, 2008). Rights in arable and residential land were inheritable and the right only lapsed when all kin left the community (Delius, 2008). Colonisation and apartheid brought significant modifications to the traditional tenure regimes destabilising the African tenure system, which brought about the dispossession and accumulation agendas of the colonial administration. In 1913 the infamous Native Land Act was promulgated, allocating surface land ‘reserves’ for occupation by black people, followed by the Native Trust Land Act of 1936 designating a total of 13% of the country’s land (Beinart & Delius, 2015) to what became homelands; and subsequently the Transkei in 1976 became an ‘independent’ state. The enactment of the Native Administration Act 38 of 1927 and the Bantu Authorities Act 68 of 1951, amongst others, further reinforced and concentrated power in traditional leadership institutions (Du Plessis, 2011). However, in some villages in the Transkei,

traditional leaders or headman were appointed by the State without taking into consideration matters of royalty and lineage, significantly eroding the credibility of traditional institutions of leadership. Post-1994, the land tenure experienced insecurity especially in the former homelands. The Freehold, Permission to Occupy (PTO), Quitrent, Trust and unregistered communal land tenure systems through State intervention have been greatly modified (Denison et al., 2015). To date, the challenge of tenure reform in particular in communal areas has not been addressed in rural areas.

This study revealed that Lutengele landholders get documented in the name of the one household member, usually the husband in households where there is a husband. This does not limit other household members' right to access and control of the land. However, registering land was done in the name of the head of the household and was in keeping with the local culture, but the land itself was the property of the collective household, with all its members, including women, enjoying equal rights of use. Although historically households have been headed predominantly by males, this has changed significantly. There were varied informal rules in Lutengele that governed how household members (both female and male) accessed land through, among other means, application to the local traditional leaders and inheritance within the family and household. Arable lands were allocated separately. Both female and male household members have rights to move out and establish their own independent homesteads; this can be done when an individual is grown up and mature, so that they have ability to fend for their new home. Land was allocated in order to support families, especially children and wives. This means that an applicant must have a family, or must prove they have dependents. Historically, applicants would have to be married to qualify, but the current low numbers of relationships through marriage have changed this. Thus, if not married, one needs to have children in order to qualify for land (Reflexive journal #RD_26/09/18). Women with children have preference over men without children. However, it was rare to see in this context single people, either men or women, apply for land as they usually stay at family homestead. However, every case is considered and needs to be motivated to the sub-headman (Contextual profile interview #CPI3). The process is often initiated by the applicant who sets out to look for an empty piece of land and which is then presented to the traditional authorities for approval. The Traditional Authority writes the name and identity number of the applicant in his list of residents and issues the applicant with a letter (Tribal Resolution) that they submit to the local office of the Department of Agriculture and Land Affairs. Historically, at least until the early 1990s, the Department would offer such applicants with Permission to Occupy (PTO) permits. However, at the inception of

democracy PTOs were, in policy at least, banned. Some people in Lutengele were issued with letters by the chiefs acknowledging their occupation of land, while others did not have such letters. While some respondents felt that their rights on the land were secured and legitimate, others raised concerns over the possibility of losing their land, especially to the state or to the local traditional leadership. Although the women respondents did not aspire for additional land, and registered land in their names would not make any difference, they felt in control of the land, especially those with husbands who were away from home working as migrant labourers. The men also seemed to be more concerned with animals than fields (Denison et al., 2015; Focus group #FG2).

However, despite the abundant land available for cultivation, in Lutengele fallowing has been in decline. Some fields had not been used for such a long time that some respondents had almost forgotten that their household had a field. The reasons for the underutilisation of land were varied (e.g. lack of fencing, the distance from home, lack of irrigation water, lack of farming equipment and the theft of crops). The fields in the low-lying area of Lutengele were also inactive as a result of the inter-tribal cattle theft war in the 1990s (see Section 6.3.2 below). In the case of female-headed households, some women indicated that the lack of husbands was one of the main constraints for not cultivating the fields (Denison et al., 2015). In these contexts, land dispossession (both residential or agricultural) was very rare unless the household family emigrates to another village and there was no one left in the village or/and a landlord had proven to be a nuisance in the village in which case the land would be repossessed by the traditional authorities.

A PTO is not a title deed but just confirms that you are there. If they want to take you out, they can or if the family leaves it can be reallocated to someone else. You can be chased out depending on your relationship with your neighbours although traditional policies may not allow. However people would make your life difficult until you leave.
(Contextual profile interview #CPI3)

From observations, land use practices were found as one of the main drivers of land degradation (as alluded to in Chapter Two) as a result of poor agricultural methods, such as ploughing on steep terrain and the widespread 'slash and burn' technique to clear the land for the building of homesteads or fields. Other drivers of degradation included deforestation, construction of roads and pathways, to name a few (see Section 6.3).

6.2.9 Local leadership

Traditional leadership plays an important role in decision-making processes in so-called communal land. The senior traditional leader, commonly known as the chief (*Inkosi*), and his council (*amaphakati*) are the supreme body of authority in community affairs in a cluster of administrative areas. Their resolutions override those of all lower structures of administration including the headman (*Inkosana*), sub-headman (*Isibonda*), head of the hamlet (*Nondlu*) and clan head (*Inkulu YeKhaya*). The administrative area of Lutengele is under the jurisdiction of the *Inkosana* and comprises five villages, including the villages of Qoboshendlini and Tyityana. Whilst the *Nondlu* and *Sibonda* are elected, the rest are born into their positions of leadership (Focus group #FG2). Processes of modification and distortion of traditional institutions have resulted from local government's disjointed attempts to incorporate tribal villages into its sphere of governance. This led to the municipalisation of rural South Africa that got vigorously pushed and entrenched into the national administration system in the wake of the reincorporation of the former homelands into mainstream South Africa at the fall of apartheid. Currently, local wards have been established, at the helm of which are politically elected ward councillors who report to municipal legislatures, which are constituted by an ethic of modern administrative political economy. Ward councillors co-exist with traditional leaders in a precarious and uncertain power-sharing arrangement (Denison et al., 2015). The Lutengele traditional administrative area aligns with Ward 16 under the Port St Johns local municipality with the exception Tyityana which is under Ward 13 in the Lusikisiki Local Municipality (Focus group #FG2_14). The two-tiered leadership and fragmented spatial boundaries, coupled with self-interests of the leaders themselves, has evolved into a sense of mistrust from the local communities about these structures, both political and traditional.

With regard to women in leadership, the Department of Traditional Affairs and Local Government set up a policy, which stipulates that traditional councils should be at least 33% women. It further prescribes that 40% of the councils should be chosen by communities and 60% appointed by the Tribal Authority (Denison et al., 2015). Despite the intention of closing the gender gap in traditional structures of governance, the traditional institutions have not yet been reformed in Lutengele. The resilient local patriarchal mind-set playing out as cultural norms, gender stereotypes seem to be delaying the realisation of desired social change.

If you are the head of the household ... you are responsible for the dead of the house. If there is a death in the family, the family head has to take a spear and slaughter a cow or goat. By tradition, a women can't get into a kraal. If you [a woman] are the leader, how would you do that? Second, we can't have a women presiding over them [men]

when they [women] are menstruating. How would you do certain thing when you are menstruating? Third, by creation, a women is under a man. If a beautiful women becomes chief and I came and she marries me ... an outsider, this outsider becomes the 'ruler'. The 'ruler' becomes to be an outsider over them. (Contextual profile interview #CPI3)

Nonetheless, in Lutengele, women did not have the desire to change the traditions. They felt that decisions on community affairs are not taken by individuals or leaders alone; instead, they are made at public community meetings usually held at the *domkhulu* (headman or chief's place). This is where important matters are discussed, and everyone present, including women, have the right to voice their opinions. The roles of the chief and headman's councils are reduced to discussing community affairs but not making resolutions (Focus group #FG2_14 and Denison et al., 2015).

6.2.10 Historicising practices of natural resource use and management

Historically, there were rules to protect local natural resources. One of these rules was that people were forbidden from doing laundry at springs/wells in the belief that these water sources were home to spirits who hated the smell of soap. The argument was therefore that if someone did laundry or bath at a spring, the spirits would dry up the spring/well. Such rules were passed down through generations by the elders. The inception of colonial domination assisted in water conservation efforts because it introduced formal rules of water conservation and protection of sensitive ecologies that included marshes, wetlands and springs. Water access and protection rules were part of the broader concept of natural resource management practices. Colonial/apartheid government sent around a complement of its fieldworkers to guide against village practices, such as the cutting of certain species of tree, etc. Other examples include when people were hunting, they were forbidden from killing female animals. Furthermore, some forests were put aside for preservation which were believed to be habitats of special bird and animal species. This resonated with some of the rules that were used by indigenous communities using spiritual beliefs to protect nature. Some of the trees were believed to be associated with the generation of ground water, so protecting them was a way of protecting groundwater. In post-apartheid South Africa, traditional leadership is trying to perpetuate the tradition of nature conservation but has limitations with regard to enforcement measures:

People of today are disrespectful of traditional knowledge on how to do sustainable practices. In this respect, few people respects the traditional leadership, especially the rich commoners, they want to go the 'legal way'. They are so politicised. They can take you to court! Traditional leaders are disempowered because they don't have the legal right to penalise an offender. The current legislation is confusing – on the one had they

say they are powerful but on the other they are denying them the real power to implement policies or resolutions. These days people are not respecting the use of natural resources that these trouble someone say “who are you to tell me?!” (Contextual profile interview #CPI3)

6.2.11 Voice and status of women

Gerontocratic authority

In this study it was found that there were differences of status and thus the authority and voice of women is determined by age and marital status. These power norms or authorities are constantly reproduced and recreated by intergenerational and gendered relations. Age and gender hierarchies persist in many rural communities in South Africa (Rice, 2014) where *gerontocratic* authority and rights were apparent in the relationships found at both household and community level for the following groups: young single women, young newly married women or *makoti*, middle-age/elder married women, widows and divorcees.

Researcher: Difference between a makoti, elder woman, not married woman, divorcee and widow in the community? Status?

Woman: A married woman is respected more than a single women (lower status).

Researcher: What does this status mean?

Woman: A married woman runs her household and doesn't have free time to do as she pleases (more responsibilities) e.g. a single woman even if she has children she can wake up in the morning and visit friends (do loose things) sometimes not even coming back she is not responsible.

Researcher: Difference in status between newly married makoti and older makoti?

Woman: An older makoti knows all the traditions/culture/ancestors (Amasiko) of her the clan she is married to since she has been there for a long time and has learnt nearly everything. Even the dress code is different, it's stricter for new makoti e.g. she cannot go around without her headdress and she is not allowed to sit on a chair and she must wear 'umshinqelo' a towel / scarf around your waist at all times. The older you are in marriage you have more privileges.

Researcher: Difference between a widow and divorcee?

Woman: A divorcee has left her household and she's regarded as failed while a widow has stayed on with the family she married into, she hasn't given up. A divorcee can have affairs and run around wild not being responsible and she is called 'idikazi' same as a single women. A widow is respected by the men in the family and she is informed about things happening within the family, while a divorcee cannot be told what to do 'akalawuleki'. Divorce is not an African culture and has changed many things like

changing to your own surname after divorce; the group believes that you can't change your surname once you are introduced to the ancestors. A divorcee is totally erased from the family she was married to. (Focus group # FG4_15)

However, gerontocratic rights were also found to have the ability to turn the assumed male authority the other way around. Alida Liebenberg (as cited in Rice, 2014) articulated these interlinked power dynamics as:

The authority structure reproduced by individual actors is based on relationships hierarchically ordered through the social division by gender and age. Male authority is a reality in a married woman's daily life. However, male dominance should not be taken for granted, as dominance is as much a function of seniority as of gender in this society ... Men are not always superior to women in status as age differences also play a role in people's relationships with each other. (p. 385)

In other words, the local structures of gerontocratic authority have far more bearing than those based on gender circumstances. For instance, in the Eastern Cape, older men command the greatest authority, and older women often command considerably more authority and respect than younger men (Rice, 2014).

Public participation and voice

Status, authority and voice are also translated into how individuals participate in, for example, community meetings. From my observations in the field, older men often do the vast majority of the talking, but when older women attend, they usually voice their opinions much more than younger women and sometimes even more than young men. As mentioned above, women do have the chance to participate in community decisions; however, the younger married women or *makotis* tend to be a 'silent voice' as they almost never speak in public or community meetings, particularly when their husbands are also present. On the contrary, middle aged and elder women participate more openly in public meetings or *imbizos*:

No I am still shy but now I am getting used to them ... it is only the older women and old men who participate in public meetings. (Interview #IHH5_13).

Decision-making power

Despite the above aspect of status and gerontocratic authority, final strategic decisions, whether political, or at community and household levels, are mainly made by men or the head of the households. Decision-making relates to the processes by which organisations (including households, families, village leadership, companies and states) make choices, determine judgments, and come to conclusions that guide behaviours of their individual members and the

collective of the entity (Harris, 1998 in Denison et al., 2015). At community level, no female traditional leader was found in the two participating villages; with the exception of a participant who indicated her past involvement as a ward committee member (Interview #IHH8_13). In the household, decisions of consumption and production involved a complex process that varies according to the nature of the decision as well as culture and gender. In general, men, not women, make the major decisions in households. However, it was noted that household decisions are at two levels; strategic decisions and operational decisions. Strategic decisions involve higher level decisions which concern the long-term direction of the household with, perhaps, some level of uncertainty and risk (e.g. investment in major agricultural inputs or selling cash crops). In this case, these decisions largely involve husband and wife, in consideration of other adult members' views, but it is the husband who makes the final decisions, with women overseeing expenditure.

Researcher: Who makes the decisions about distributing your agricultural outputs such as vegetables for food or selling?

Woman: You sit down and you talk. What about this now? What are you going to do with the produce?

Researcher: Does it ever affect you? Are there disagreements?

Woman: We agree because we need money. Everything needs to be sold. We discuss together.

Researcher: is it for the benefit of the family or the husband?

Woman: We always sit down and we agree. Sometimes the husband says there is a need to fix machinery and they understand.

Researcher: Is this a general practice or only in your household?

Research assistant: They [women] always monitor the income of the family even the pension money so they know what happens with it.

Researcher: ... and makotis?

Makoti: Sometimes it happens and you can see there is a huge shortage. No, I am saving for something. So you would ask, what happens? Inform me! So there isn't a shortage. (Focus group #FG4_15)

In woman-headed households, such as single women who have inherited the family homestead, the final word in strategic decisions is in consultation with family members. Additionally, widows often live at the homestead of the late husband's family, which in many cases is interlocked with

his family network and so major decisions are done in consultation with the relatives of the late husband (e.g. selling livestock).

On the other hand, day-to-day operational decisions (e.g. what food to purchase, vegetables to plant, selling eggs and poultry, etc.) are made by women regardless of whether there was a male member present or not. These decisions, however, tend to be made in consultation between husband and wife or at least they inform each other. In Lutengele, when women were asked how farming decisions are made in their respective households, the majority responded by saying “*siya thetha thethana*” (we negotiate) – but this does not mean that there are necessarily equal power relations between women and men in all the households. These intra-household power dynamics reflect the reality that household resources are shared, and that an agricultural enterprise is a collaborative family pursuit led by a decision-maker. Consequently the aspirations of the women involved in the study need to be considered within these realities (see Section 6.4).

6.2.12 Common women aspirations: The well-being of the family (the ‘good life’)

This study denoted that women in Lutengele see themselves and their aspirations realised in the well-being of their children. Their interest for engaging in food production and income generation lay in being able to meet the food needs of their children and family as well as supporting them through schooling and education in order to further their opportunities later on in life. As a result, women usually take on a great deal of responsibility and obligation in caring for their children, maintaining the household and financially contributing with school related costs (e.g. uniforms) when circumstances permit. Societal expectations on women are closely linked to the reproductive activities that come with the ‘job’ or marriage arrangement, as alluded in Section 6.2.3 above. They tend to put the interest of others over their own well-being and work intensely to secure ‘a safety net’ for the family. Women in traditional societies may lack a notion of personal welfare because their identities are too closely tied up with the interests of the household (Iversen, 2003) or the family. As a result, and according to Chant (2007), women in this context may have “injected more effort into household livelihoods than have men and there seems to be a growing unevenness in gendered contributions” (p. 333). Therefore the prevailing motivation of women involved in this study with regard to agricultural production boils down to producing enough food for their family with some cash surplus to complement their family needs (e.g. renovate home, purchase furniture, etc.) but particularly, meeting the needs of their children (e.g. school fees, uniforms, etc.). Some households appeared to be more business oriented. With

regard to the newly married women or *makotis* interviewed during this study, having their own homestead and the break away from the in-laws' authority was also viewed as a main priority.

I would like to build my house and be able to educate my child who is at Cicira training college. (Grandmother with eight dependents, Interview #IHH3_13)

Having my own household not my in-laws' household, having my own furniture. Unfortunately my husband is a first born it is difficult for us to leave. (Makoti of arranged marriage with husband working away, Interview #IHH5_13).

It is important to recognise that women make decisions around family well-being, particularly on how much education or healthcare to provide to individual children, and therefore they hold an influencing role in the “intergenerational transmission of poverty and the potential for upward mobility across generations” (Doss, 2013). An investment in mobilising women’s agency at the intra-household level, and the resultant empowerment, therefore, makes sense as it impacts not only on economic development but also on human development outcomes of future generations (World Bank, 2012). Greater control over household resources by women leads to more investment in children’s human capital, with dynamic positive effects on economic growth. Improvements in women’s own education and health also have positive impacts on these and other outcomes for their children. Women’s lack of agency – which shows, for example, in situations of domestic violence – has consequences for their children’s cognitive behaviours and their own health as adults. Global evidence shows that families benefit when women have greater status and power within the household (Smith et al. as cited in FAO, 2011). In other words, stronger bargaining skills over agricultural decisions regarding production, investment and consumption position women in a more influential role over their family’s well-being. The facilitation of agency of women within the household, through formative interventions, such as the one undertaken in this study, targeted at nurturing collective transformative agency and material change in the life of these women has proven to be an optimal form of engagement for women’s empowerment and family well-being (see Chapters Seven and Eight).

6.3 The evolution of sustainable agricultural livelihoods and practices in the Lutengele villages

This section aims to describe the past and current development of the Lutengele agricultural activity from the point of view of the accounts and narratives gathered during my fieldwork from some key informants. These were the Lutengele oldest resident of the area, the *sibondas* (sub-headmen) from Qoboshendlini and Tyityana villages, residents who have experienced critical changes in the life of the area, as well as my own recollection of events as an NGO practitioner

in the area supporting agricultural livelihoods and environmental learning from early 2000s. The analysis of a variety of reports, including the WRC final report (Denison et al., 2015), has also provided insights into how the main activity in view, sustainable agricultural livelihoods, has evolved from prior to the 1990s to the time the research was and changes in participants' learning and practices. The future of activity, as envisaged by the research participants, is also outlined and represented in their small-scale farming aspirations.

6.3.1 Description of life in Lutengele prior to 1990s

The villages of Lutengele have a long history of a crop cultivation tradition that dates back for generations. Over time, several strands of skills and knowledge have been used and new ones have adapted through contact with external communities such as traders and government and development agencies. Originally, Lutengele was a village located in the low-lying area of the Mzimvubu River valley, and only later, Qoboshendlini and Tytityane villages were established higher on the hills. Lutengele was a well-established place with a trading store and a school. The shop was founded by Mr Daniel and his successor, Hermann, had an orchard in the yard, poultry and livestock but during Mathanzima's government period he left the village. The trading store was thereafter taken over by Mr Qholothela and later by Mr Magebeza. The shop supplied all the neighbouring villages. Homesteads were scattered around the village and drinking water was pumped from a borehole to a communal tap.

From the narratives it is evident that Lutengele was a rich agricultural area for both crops and livestock as it received good rains, had good soils and the river was easily accessible and close by. Over the years, agricultural practices were passed on from generation to generation. In the 1940s agricultural extension officers came into the area and were stationed in Nxongweni (a village approximately 10 km from Lutengele on the way to Port St Johns). The first extension officer reaching out to Lutengele, Mr Tenyane, established a demonstration garden in the village from where 'new' modern agricultural methods were taught often undermining the prevailing agrarian values. The residents reported that from his demonstrations they gained new skills. In 1954 the offices were relocated to Port St Johns and extension officers became rare in the area, as it was difficult to reach Lutengele from the new premises. In the 1960 a land planning regime took place within the village. As a result Lutengele was subdivided into three areas: farming fields, grazing land for rotational grazing of livestock and housing. Some families had to relocate from the farming area to the designated housing area. There were a few families who decided to

move out of Lutengele to further up the hills near the cattle dip to what is nowadays known as the village of Qoboshendlini. Tata Zinyosi (Qoboshendlini *sibonda* or sub-headman) noted:

When the trust decided to move me I decided to move to Qhoboshendlini near to the cow dip where there were five families already looking after the dip. (Contextual profile interview #CPI2)

Agriculture at that time became coordinated by a community trust overseen by government and local leadership. The trust was responsible to maintain the grazing camps and fields, making sure that the fencing was not vandalised and employing people to keep them in good order. Prior to these changes when the rainy season started in September, *ukuhlakula* would take place. This practice has almost disappeared as more conventional farming techniques were introduced in the area including the use of chemical pesticides for the first time. *Ukuhlakula* refers to a local planting method used for growing maize. Tata Zinyosi explained the method:

You would throw the maize all over and then the cows would come to mix with the soil. You would never turn the soil. Six cows would come to plough afterwards. It was done like that when I grew up. That was the method of planting. How it was done. The maize grew up very well. The grass would not be removed. It went in the soil when turning the soil and left there. Only weeds would be taken out when they grew. The method was applied in big gardens. The gardens were big at the time ... They don't use this method any more ... Some people still do it but not a lot of people. I know a few people ... Now we plant the modern way which is good to plough, then follow behind the plough with seed ... [it is] easier when applying pesticide. (Contextual profile interview #CPI2)

The maize would be harvested in February and dry maize in May. The harvest was given to extended family members and also stored in the *izisele*. Between May and September, traditional ceremonies took place since there was enough maize for food and traditional beer (*umqombothi*). Ceremonies included *iminquzo*, *abakwetha* and other fun activities including *amangeno*, *timiti* and *bundela*. Between 1960s and 1970s *bundela* and *timiti* were introduced (stokvel or saving schemes) and in the 1980s, *amangeno* (clubs/disco). The general interest for agriculture started to decline as people had become more interested in the capitalist trajectory and a modern way of living in contrast with the teachings of their forefathers (Contextual profile interview #CPI1). It was only since the times of the trading store under the management of Mr Magebeza that the residents of Lutengele were exposed to the possibilities of marketing and selling the locally produced agricultural produce to places such as Mthatha. People mainly grew maize, sweet potato, potatoes and beans. The owners of the trading store also introduced fruit such as paw-paws, peaches and pineapple which slowly made their way into the local gardens (Contextual profile interview #CPI2).

Prior to the introduction of trusts, the fields were organised as family fields not communal ones. If a family lacked enough labour to plough the fields an *ilima* would be arranged. *Ilima* consisted of a traditional way of collectively assisting one another to cultivate the land. These events were very social and filled with *umqombothi* and a spirit of working together (*ubuntu*). It was reported that *ilima* was still a common practice at the time of the study but it had become expensive as the expectation was to provide the helpers with abundant food as well as beer. It was also noted that the job would be poorly done and often not very reliably (Focus group #FG3).

6.3.2 Change in agricultural practices as a result of displacement and formation of villages: 'Majola Wars' in the mid 1990s

The inter-clan conflict of the bloody Majola Wars in the 1990s were the result of local tensions between Lutengele and Lwandlane (a village in the Majola area across the Mzimvubu River from Lutengele). The feuds originated around stock theft. The first cycle of disputes started around 1982 with a youngster from Lwandlane who stole a cow belonging to the Lutengele community. The matter was resolved until more incidents led to the killing of three men from Lutengele. The people responsible were arrested but a lasting feud started again between 1994 to 1995 which escalated and resulted in the death of many people and the burning of homes on both sides of the river, including the local school in Lutengele. From the testimonies gathered during this study, I noted that this was a devastating time for the families staying in these villages with many repercussions. The matter evolved into a true massacre and the use of *muti* was widespread to help the men gain strength and bravery in the war (Reflexive diary #RD_06/05/14). Despite external interventions from the local police force and reconciliation efforts, people left the area since there was no peace. When the fight ended, many people from Lutengele had moved to other villages like Qhubeni, Qoboshendlini, Tyityana, Nxongweni and other areas in Port St Johns. The people from Lwandlane moved to Chaguba. Only seven families decided to stay in Lwandlane; to date they still reside in the village. No families stayed in Lutengele. The remnants of households and buildings in Lutengele are testament to this violent period. From an agricultural point of view, the high-value agricultural land in Lutengele with river-terrace soils next to the Mzimvubu River lie unused and became densely infested with vegetation partly due to reported ongoing security concerns, particularly for women venturing far from the village to tend fields, but it was also suggested in interviews that it may be tied to superstitions and unresolved social impacts of the Majola wars. In 2003 a government driven agricultural project was set up for the people of Qoboshendlini and Nxongweni. The project catered for only 15 people of which all were women with two men heading operations. It was indicated that the project's monetary

returns were never shared with the members of the project leading to fights within the team and resulting in the project closing down. The relocation to new areas led to the opening of new fields and gardens in the Lutengele area closer to people's new homesteads. People continued producing food similarly to the way they used to prior to the relocation but in sites far away from the main water source, the Mzimvubu River, with less fertile soils and steeper terrains bringing new challenges and changes to their practices.



Picture 6.4: The abandoned Lutengele village after the Majola cattle wars in early 1900s (Clockwise: livestock grazing at the Mzimvubu river; local primary school; trading store; and demolished household)

6.3.3 A new 'light' into food production, relationships and the establishment of an informal women farmers network

In the early 2000s the Wildlife and Environmental Society of South Africa (WESSA), through the Eco-Schools and food production programmes, first entered into contact with Qoboshendlini and Tyityane villages, among other villages in the area. These projects which have been funded among others, by the World Wide Fund (WWF) and DWAF (Department of Water Affairs and Forestry), aimed to improve natural resource utilisation and sustainable agriculture education. WESSA entered into partnership with a local NGO, the Wild Coast Farm and Forest Organisation (WCFFO), which promoted indigenous farming knowledge and home food production using low-external input and sustainable agricultural (LEISA) approaches since 1990s. WCFFO also established a network of small-scale farmers across the Port St Johns area, the Master Farmers

programme. This programme provided some extension support to the farmers, organised sharing events and competitions and assisted with agricultural inputs at a discounted rate. WESSA and WCFFO worked together in an effort to improve household food security based on ecological agriculture and catchment management principles and practices in the Lutengele area. The villages had a long history of planting traditional rain-fed crops such as maize, pumpkins, beans and sweet potatoes. This practice was passed on from generation to generation. However, production of other vegetables (e.g. cabbage, spinach, carrots, onion, etc.) was not part of the local routines and was introduced by joint efforts between WESSA and WCFFO which required different skills and inputs.

WESSA and WCFFO have played a huge role in educating us on food growing, we are not buying vegetables anymore, and our gardens are our source for/of living. (Focus group #FG3)

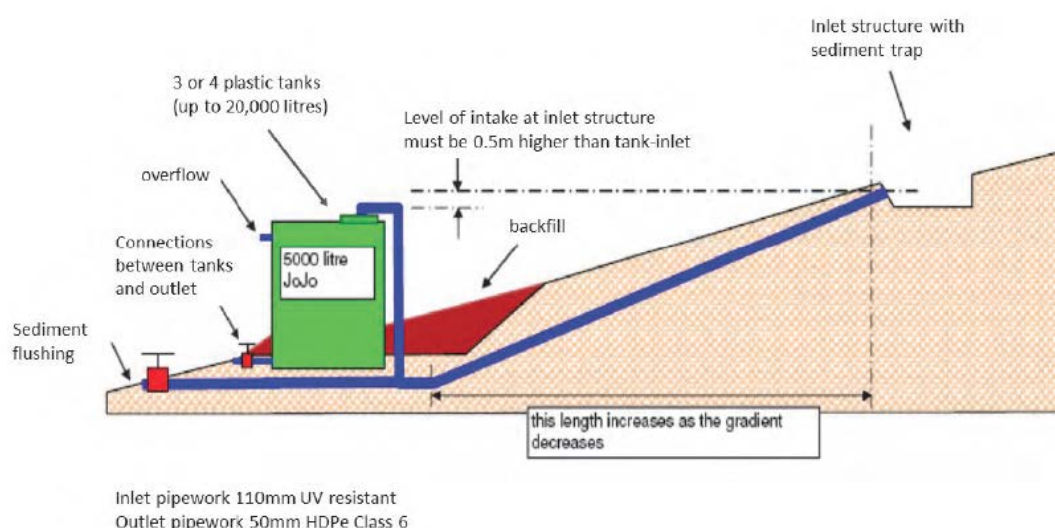


Figure 6.2: Cross-section of surface-water collection storage tank system (Source: Denison et al., 2015, p.167)

Adaptive and sustainable farming techniques such as multi-cropping, agro-forestry and rain water harvesting and optimisation techniques were also promoted in the area as a sound intervention to increase local agricultural productivity while also addressing principles of ecological sustainability such as land management and soil conservation. This approach has received some recognition as a sound intervention that increases local productive resources. “Organic multi-cropping of a variety of fruit and vegetables requires far less land than maize and is the key to saving the remaining 20 000 hectares of rare indigenous coastal forests around Port St Johns. It also offers local farmers an opportunity to make a living and to feed their families

healthy, natural food” (Dugmore, 2008 as cited in UCG, 2011, p. 32). Between 2007 and 2009, WESSA and WCFFO became implementation partners to Umhlaba Consulting Group on the Department of Water and Sanitation (then DWAF) Rain Water Harvesting Pilot Project in the Lutengele villages and in other areas of Port St Johns.

The project’s funds were sourced from the resource-poor farmers’ subsidy for storage of tanks and food production training. A total of 34 households in Lutengele were part of the RWH pilot programme of which 10 received 20 000 litres of water storage and collection infrastructure, which allowed all-year round production for a 100m² garden in winter and 200m² garden in summer. The training in food production included alternative infiltration and conservation methods, such as swales, mulching, diversion furrows, etc. linked to soil erosion control methods (see Section 2.4.2). The water storage tank systems are depicted in Figure 6.2 above and some examples of the tanks can be seen in Picture 6.5 below.



Picture 6.5: Lutengele surface runoff collection in home gardens

During these years a self-constituted community of practice was formed in Lutengele primarily by small-scale or subsistence women farmers. Throughout the formation of the women farmers group or network, the group has been led by a local woman who motivates and brings her experience and information into the group. The leader of the group, originally from Soweto (Gauteng), has been key to mobilise assistance and external inputs for these farmers through her enthusiasm and interpersonal skills. The group is not exclusively for women and involves a few local men. Women support each other and over years the group has gradually expanded and even further through the research process (see Chapters Seven and Eight). Unfortunately, all support from WESSA, WCFFO and Umhlaba Consulting Group ended with the RWH project in 2009 and funding stopped until 2013 with the start of the WRC research project. This women’s group or network became the focus of the WRC project and my study since 2013 building on well-established reputations and relationships of trust.

Opportunities to establish a Local Water Forum were also explored with DWS Catchment Management Agency for the Eastern Cape with the aim of increasing institutional capacity for the group to collaboratively develop solutions and interventions that promote ecological health of their landscape as well as livelihood opportunities based on a watershed management approach as a platform to exercise voice beyond the women farmers group already established (see Section 2.4.1). On 21 January 2016, the women's group leader together with the senior traditional leader, WCFFO and myself attended a discussion meeting in Mthatha held by DWA CMA acting manager to discuss the future of the CMA in the Eastern Cape and the potential establishment of CMFs within the Mzimvubu Catchment. The meeting/workshop was also attended by other representatives from across the Mzimvubu basin. No follow-up proceeded after the meeting despite numerous attempts to instigate the formation of a CMF in the Lutengele area (Research field report 21/01/16).

6.3.3.1 Current food production activity (at the time of the study)

At the time of the field research it was observed that cultivation was moving away from arable fields to the arable plots within the homestead (*umzi*) boundary. Shifting cropping patterns in the Eastern Cape have been noticed and documented since the early 1970s. This could be due to the lack of fencing along with mechanisation (Fay, 2013 as cited in Denison et al., 2015). Also there was higher soil fertility status within the homestead's arable land (*igadhi*) due to proximity to kraal manure and ease of haulage (Walker, 2011) and other drivers which pointed to de-activation of field agriculture (Shackleton & Hebinck, 2018). Findings from the WRC project indicate that in Lutengele 94% of the households have access to a vegetable garden (*isitiya*) and 83% to an *igadhi* (garden use for one crop per year within the boundary of the household). However, only 57% of the households still had access to a field (*intsimi*), partly because of the limited arable land on the steeply sloping terrain in the area; this also accounts for the relatively higher utilisation of the *igadhi*. For those households which had access to a field, it was reported that only 43% had cultivated them over the last two years (Denison et al., 2015).



Picture 6.6: Home-based vegetable production in Lutengele

Key spatial zones of crop production have informed the study process and contribute to understanding the participants' aspirations in relation to these planning scales as well as informing co-development of solutions (Figure 6.3). Planning scales are useful to make strategic decisions in terms of water and land management practices used in each farming space and its implications to sustainability, gender, safety, labour, etc.

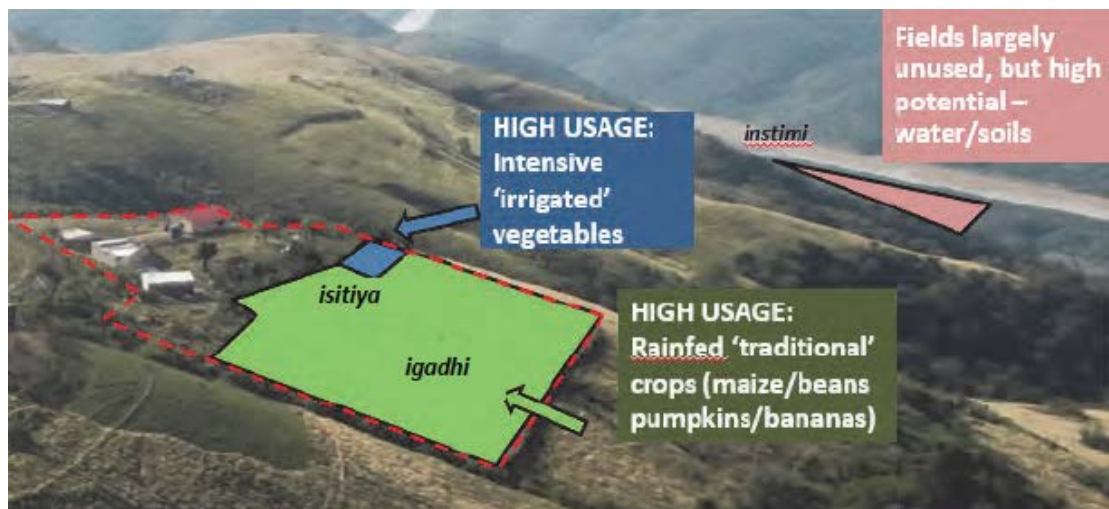


Figure 6.3: Differentiated cropping zones (Source: Denison et al., 2015, p. 67)

From the research findings, the crop production spatial zones were found to have the following characteristics (ibid., pp. 195 - 220):

- The *umzi* is the boundary of households and includes the houses and other built infrastructure (kraal, outbuildings, etc.) as well as the *isitiya* and *igadhi*.
- The *isitiya* is an intensive vegetable garden close to the house and is usually watered (approximately 500 – 900m² extension). It is usually cropped twice per year mostly with a

wide variety of vegetables such as cabbage, spinach, butternut, carrots, onions and more. In addition, herbs for food, medicinal and pest control purposes were found. The *isitiya* is irrigated with low-cost hand-watering techniques, with water hauled from local sources or from storage tanks. Some farmers were practicing water management through mulching and rainwater harvesting.

- The *igadhi* is a larger, typically more extensive rainfed farming area still within the *umzi* boundary of about 0.50 ha. The *igadhi* is mainly characterised by the planting of maize, beans and pumpkins. Other major crops grown include pumpkin, beans, cabbage, and potatoes. Maize is produced for the home, to use for food and making *umqomboti* (traditional sorghum-maize beer). It is also used to trade locally for vegetables, livestock feed and food, with small surpluses sold at the local market. Winters are often dry with occasional rains that cannot sustain vegetable cropping therefore this area is usually only cultivated once a year.
- The *intsimi* (singular) or *amasimi* (plural) are the fields that are typically about 1ha and located away from the homestead boundary itself (1 to 4 km); they are usually rainfed, but may be irrigated. More than half of the households did not cultivate these fields.

6.3.3.2 Natural fertilisers and pest management methods.

At the time of this study it was reported that 90% of the agriculturally active households used compost to keep soils fertile, and none of the respondents from these villages reported the use of inorganic fertilizer in their gardens (Ibid., pp.220-21). Methods such as applying compost and manure to crops were encouraged by WESSA, and have been widely adopted, perceived as cheaper and healthier alternatives to industrial options. Additionally, the findings show that the majority of respondents at Lutengele have opted to use natural methods for getting rid of unwanted pests.

6.3.3.3 Ownership of assets and agricultural utensils.

From my observations, interviews and document analysis, people in Lutengele generally have limited agricultural infrastructure and resources. The area is steeply sloping, which makes conventional farming with mechanisation (tractors) difficult or impossible. There was a significant resource of oxen for tillage and use of oxen was observed, but there seemed to be a primary reliance on labour within homestead gardens which is the primary area of activity. Most households had fencing, albeit traditional fencing using forest materials or live fencing with aloes and euphorbia, mixed with whatever scrap wire and poles were at hand. In the fields, on the other hand, a lack of farming infrastructure was noticeable (fencing, storage facilities,

equipment). Access to the fields by vehicle was difficult through the rough, steep and eroded tracks. Of the WRC project survey respondents, 42% had access to donkeys which were used for water-portage from rivers and springs in the absence of municipal supply (no communal tap-stands); additionally 45% had access to cattle, 2% to vehicles and 47% to a garden effectively fenced (ibid, p. 64). Lack of fencing was reported as one of the major contributors to stopping planting the fields. The lack of fencing/effective fencing also affects farming in the *igadhi* and the use of tree branches for fencing is prone to destruction by cattle, while small animals such as goats simply get into the fenced field through the big gaps between the branches. Sometimes heavy winds also blow the fencing down (Focus group #FG3). The households also had access to basic gardening utensils such as ploughs, axes, hoes, etc. However, the use of certain farming utensils was restricted to either males or females of the household.

Researcher: Is there any equipment in the household that belongs to the husband?

Woman: [...] even if he does have, you can use his stuff besides the axe and the machete because you can make it blunt. We need to find our own! (Focus group, #FG4)

6.3.3.4 Farming inputs (seeds and seedlings).

Seed for maize crops is often 'home-made' meaning that seed is kept from generation to generation. Farmers select and keep seed from the previous season's crop, thereby limiting their dependency on the external market. However, in a few cases farmers opt to buy treated and higher-performing seed from the market. Seeds and seedlings for the *isitiya* (vegetable farming) were mainly purchased from the only local supplier in Port St Johns. The nursery ran a discount scheme – after joining for an annual fee of R30, customers would get their purchases at a discounted rate. The most popular seedlings to purchase were cabbage, spinach, carrots, onion, beetroot, tomatoes, eggplant, lettuce, cornflower, potatoes, radish etc. On social grant 'paydays' the nursery sends a truck to the 'payday' meeting place in Lutengele and sells from there. In this way farmers are saved from travelling to the nursery in Port St Johns and from paying a taxi fare of R62 for the return trip. The seedlings ranged from R15-R20 per bundle of 15 units. However, discontentment was reported with the nursery in terms of unreliable supply and the quality of the seedlings making planning for planting and food production difficult (Focus group #FG3).

6.3.3.5 Labour

Labour was scarce as people of working age, especially men, have left the area in search of work elsewhere. The households are mainly headed by elderly women with a large number of dependents of a young age. Gardening was mainly shared with the children and where possible,

for tougher labour needs such as ploughing, people also use *iceshana* (a person who helps in the garden and takes part of the harvest) (Focus group #FG3). *Ilima*, as indicated earlier, was also another option although not very popular and people preferred to employ someone in order to have more control with gardening output. Hiring was viewed as extremely expensive and therefore not a popular practice among the farmers.

6.3.3.6 Production and sales

Homestead food production seemed an important contributor to the family food needs of the research participants but was impossible during the dry season without supplementary irrigation. The main use of the food produce was primarily for food consumption (92%), followed by sharing with neighbours (30%) and selling within the village (57%). Only 6% of the participants reported selling outside the village, mainly to Port St Johns (Denison et al., 2015). When selling in the village, people tend to sell to neighbours or at the social grant payday location once a month (Focus group #FG3). There was a sense among the women's group that the towns of Port St Johns, Mthatha and Lusikisiki could open potential market avenues for the group to access market value chains.

6.3.3.7 Skills and knowledge for crop production

The WRC final report indicated that at the time of the study, based on a knowledge and skills audit conducted with the farmers group, the majority of the respondents considered themselves as being competently knowledgeable of basic food production skills, such as determining the seed depth and inter and intra-row spacing, when to irrigate, including what times of the day and how often. They were also able to determine when plants were nutrient-deficient and how to select the planting methods for various crops for most of the time. An extract from the WRC report confirms the above as:

Only one farmer of the 30 considers himself very competent, and in just one category – determining seed depth. In 6 of the 18 areas of assessment, more than half of the respondents indicated that they think they are (moderately) competent. Of these, most people (94%) are confident about their plant spacing and depths. Around half or more of the farmers (54%-60%) feel competent in planting techniques, timing of irrigation, managing fertility and harvesting properly. However, only a fraction, between 3.3% and 16.7%, are confident in the 12 more technical and marketing-related competencies of farming. Capability in water-management, working with small-farm equipment (i.e. calibrating and operating sprayers, maintaining watering systems, operating tractors or pumps), financial management, and knowledge of marketing contracts and pricing, are all generally self-assessed as 'not competent'. (Denison et al., 2015, pp. 221-222)

The report seemed to focus on an assessment of competencies centred around conventional agriculture and neglecting more holistic and sustainable agricultural system approaches in line with the agro-ecology or permaculture orientations endorsed by the NGOs supporting these practices in the area, namely WESSA and WFFO. From observations it was apparent that whilst some households had employed WH&C techniques, intercropping and other water and soil conservation methods, other households continued with 'business as usual'.

6.3.3.8 Other projects in the area.

At the time of the study, there was one small communal project on 10ha of land which was funded by the Department of Social Development but which was somewhat beset with local political, institutional and profitability problems and was dysfunctional. It was also reported that the Department of Agriculture as well as other NGOs interacted with the women's group in various forms. The Department of Agriculture seemed to supply seedlings to the group but often out of season or of poor quality without considering the needs and willingness of the group. Other NGOs were working ad hoc in the area without a clear programme or structure.

6.4 Agricultural aspirations of women

Smallholder farming typologies depicted in Table 6.1 were central to the formulation of participating women's aspirations pertaining the agricultural activity in view and thereafter, the preliminary farmer group's perspective on associated constraints. These constraints became the preliminary analysis of contradictions which were further expanded with the ethnographic, socio-cultural and socio-economic data gathered during the study and presented in Section 6.7 below. Assigning food production aspirations to a farming typology allows for a more concise approach to the development of appropriate responses, solutions and strategies to meet the needs of the farmers, given their practices and available resources. Each typology requires different farming capabilities and different kinds of support interventions, both in technology and scope. The typologies take the sub-factor of farming location – the *isitiya* (irrigated kitchen garden), *igadhi* (field inside the boundary of the homestead) or *intsimi* (more distant field) – into account. The respondents from the farmers' group expressed their food production aspirations firstly individually and then later, in the interventionist workshops, collectively. However, given the fact that each woman belongs to the institution of the family or household unit, it was not clear whether the aspiration reflected their own wishes and visions or the views of the family or household.

Table 6.1: Smallholder farming typologies at the research site

Typology	Key characteristics: Purpose / labour / risk appetite / external dependence	Approximate scale and location	Crop mix
A: Food grower – low productivity	People who grow <u>primarily for home consumption</u> (and social exchange) but with <i>low productivity and minimal surplus for cash sale. Low-investment low-risk farming approaches.</i>	< 200 m ² <i>isitiya and igadhi</i>	vegetables greens maize pumpkins
B: Food grower – high productivity	People who grow <u>primarily for home consumption</u> , with <i>high productivity and sale of surplus. Low external dependency. Primarily hand-watered.</i>	0.1-1 ha <i>isitiya and igadhi</i>	beans tree crops
C: Food and cash farmer	Farming with intention of <u>significant cash sale requiring external markets</u> . Land preparation is mechanised but family labour predominates. Significant external dependency, moderate risk. Loose value chains predominate.	0.5 ha to 2 ha <i>igadhi and intsimi</i>	food and high-value cash crops
D: Business farmer	Farming for <u>cash sale to external markets</u> and where the farming enterprise makes a <u>dominant contribution</u> to livelihoods. Employed labour. Mechanised. High external dependency and high risk. Marketing through loose and tight value chains.	2 ha to 20 ha <i>intsimi</i>	intensive vegetables green maize field crops
E: Equity labourer in a contract arrangement	Residents who have rights to land and water and <u>no intention of farming actively</u> , but instead lease or sharecrop. Low financial risk, high contract risk.	field scale with consolidation of multiple plots	commodity crops

(Source: Denison et al., 2015, p. 226)

The understanding of aspirations is complex as they are influenced by a social order and a sense of their own identity and empowerment (see Chapter Three), which vary according to each individual's circumstance (e.g. gender, age, household decision-making power, education, etc.). During the focus group discussions (FG2 and FG3) and individual interviews, participants who associated their agricultural capability with *Food Grower A* (low productivity) indicated that in five years time they would like to move to category *Food Grower B* (high productivity). Others who felt they were already in the latter category expressed that they wanted to 'hang in there' and improve their capability in this sense; and a few respondents were more aspirational in that they saw themselves moving towards improving their cash sales by accessing external markets (e.g. Port St Johns) – category C. An observation from the discussions held with the research participants was that there was hesitance to aspire too high (FG5). People rather aim for what they can do with the possibility of a few extra resources. However, these aspirations may be of higher level (moving 'upwards') as people become confident in what they do and new opportunities become available. The reasons for this may be that farming is a development process that takes place in progressive stages and that the main priority is attached to produce sufficiently for their families before they grow for profit. Secondly, although their households have

long histories in farming, they have relatively little knowledge in planting high-value vegetable crops such as tomatoes, onion, beetroot, spinach etc. as these crops were only recently introduced in the area. Furthermore, there seemed to be little-market potential to encourage them to aspire to being Business Farmers and so the market appetite may be confined by this, nor had they enough marketing expertise to sell bulk produce. Additionally, the low performance of crops and lack of adequate infrastructure, equipment and inputs may have also played a role in not pitching to higher aspirations of commercialisation. Overall, farmers in this study attributed their aspirations based on what they felt was achievable shaped by their realities of capabilities and constraints. The findings on aspirations were of primary significance in going forward, in that they provided parameters within which to co-define response strategies and capabilities in terms of water needs, agricultural equipment, labour, etc. These agricultural aspirations and motives for farming, together with the associated contradictions derived from a systemic analysis of the activity drawing on Second Generation CHAT, were taken forward into an expansive learning process (Chapters Seven and Eight).

6.5 Summary of the agricultural activity system

This section summarises the activity system encompassing the data generated during the exploration phase of the study, Phase One, by describing the different interconnected elements found in second generation activity systems in order to understand the different relations, contradictions and tensions within the women farmers group activity system that contribute to, and constrain the empowerment of women in the context of food security and sustainable livelihoods. The synthesis of the sustainable agricultural activity follows Engeström's (1987) explanation of activity as an activity which is undertaken by a human agent (subject) who is motivated toward the solution of a problem or purpose (object), and mediated by tools (artefacts) in cultural factors including conventions (rules) and social strata (division of labour) within the context of the mediating role of the community.

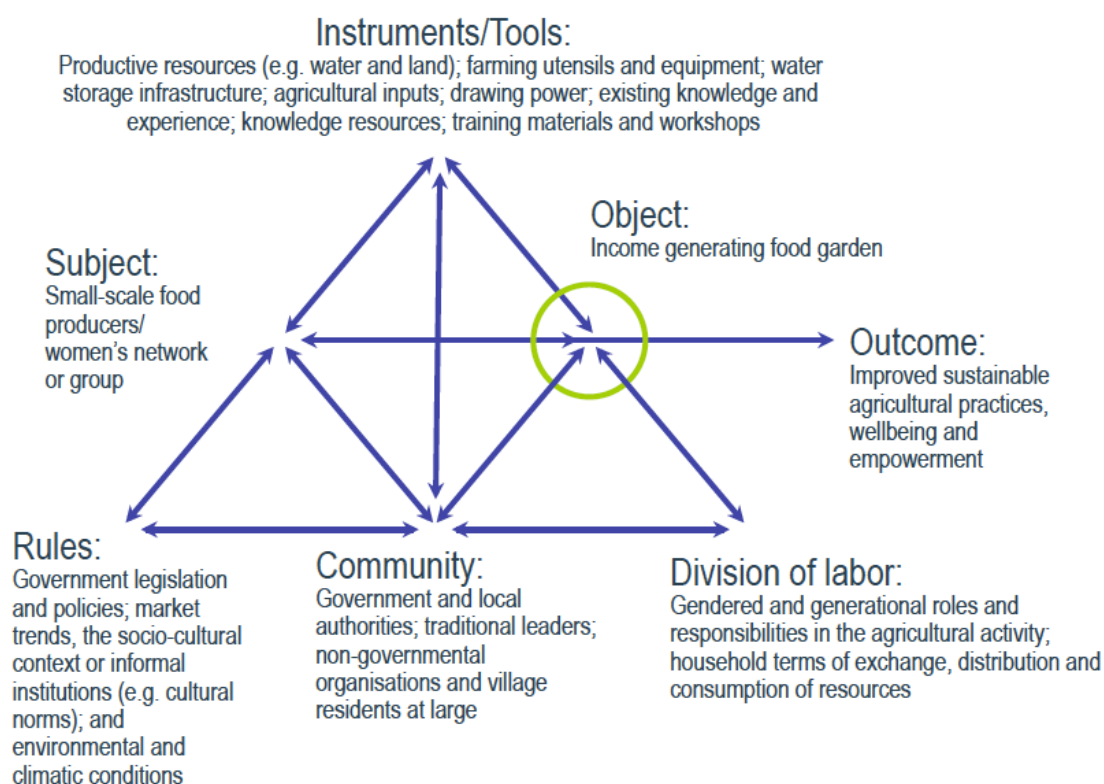


Figure 6.4: The Lutengele smallholder food production activity system (adapted after Engeström, 1987)

In the Lutengele activity system the *subjects* of the sustainable livelihoods or small-scale agriculture and food production are the female gardeners (and a few men) who collectively constituted an informal farmer's group or network and are involved in the learning and development of their activity together with the researchers. Among other things, these gardeners are driven by their desire to feed and look after their families as well as generating income from their garden produce (aspirations as described in Section 6.4 above). This is the *object-motive* of their work activity and the reason why they voluntarily engaged in a collective learning exercises in the form of interventionist workshops over a 24-month period with an envisaged *outcome* geared towards the realisation of their aspirations through the improvement of sustainable agricultural practices, well-being and empowerment. The group also needs the *mediating tools* which can be conceptual or material such as productive resources (e.g. water and fertile land), farming utensils and equipment; water storage infrastructure, inputs such as seeds and seedlings and drawing power, to name a few. Knowledge, skills and experience are also needed as inputs to expand their capability and can be facilitated with concepts, training materials and workshops from local NGOs (such as WESSA and WFFO) as well as developed across generations or from farmer to farmer (see Section 6.3.3.7 above). Agricultural learning and practice are also influenced by environmental factors such as rainfall, type of soils, access

to manure, etc. They can also be influenced by government legislation and policies, market trends, the socio-cultural context (e.g. culture and norms) as *rules* that govern their practices and access rights to resources. These could also be the rules embedded in the household institution (see Section 6.2.11). Rules also affect *division of labour* in the production of the object in terms of exchange, distribution and consumption of resources as well as gendered and generational roles and responsibilities in the agricultural activity (see Section 6.2.3). Subjects interact with other people that can also affect their business. Their *community* can be either a collective or individuals with interest in the object of the activity system. Stakeholders such as government departments, local and traditional authorities, and non-governmental organisations have a role to play in supporting the advancement and aspirations of the subjects or food producers. All these parts interact together and relate to one another to form the activity system represented in a triangle with interconnected lines. The Lutengele agricultural activity under research is depicted in Figure 6.4 above. When the parts do not fit together and form relational tensions, they manifest as *contradictions*. By paying attention to these contradictions, the subjects can engage in collectively strengthening their practice by developing novel solutions and strategies to overcome them (Engeström, 2001). The contradictions found in the analysis of the activity system are further described in Section 6.7 below.

6.6 Case stories of the home-based food production practices, capabilities and agency

This section introduces the case stories or narrative accounts of the ten research participants from the Lutengele home-based agricultural production activity. The individual cases can be found in Appendix D and have been narrated in a way that intend to illuminate the productive resources and livelihood assets at the disposal of each individual woman. The narratives have been constructed by describing women's small-scale agricultural practices, their aspirations and motives for engaging in food production, their constraints as well as roles and responsibilities in general and the multiple livelihoods strategies the subjects were involved with (e.g. house chores, gardening, wage employment, etc.). Multiple sources of contemporary ethnographic data have been analysed to understand the women food growers' activity. These included individual interviews conducted from 2013 to 2018; baseline surveys carried out during the WRC research phase (raw data); observations as well as pictorial evidence of each household. The data was also used to triangulate the findings generated from the focus groups and other sources used in constructing the context of activity.

Given the fact that the agricultural activity researched in this study refers to home-based food production practices, the purpose behind the individual case stories was seeking for a deeper understanding of the individual in agricultural practice within the household unit. In this way, the insights regarding learning, change and transformation that the formative intervention research brought about in the life of these women participants had to be considered in relation to their institutions of the family (households) as well as in the wider social sphere of the community they belong to. Households in this study were also considered as "... not merely places to live/eat/work/reproduce, but as sources of identity and social markets. They are located in structures of cultural meaning and differential power" (Guyer & Peters, 1987, p. 209). And thus these intra-household dynamics may affect individual capabilities requiring agency or 'power' to negotiate the way through the women's desirable outcomes or aspirations. In these situations fair livelihood outcomes may depend on the bargaining power skills of the women (Kabeer, 1999, p. 438). Here, agency can take the form of bargaining or "*siya thetha thethana*", translated by the women as "we negotiate". It affects the conversion of commodities into functionings, or conversion of endowments (e.g. land) into well-being. In this context, the expansion of livelihoods capabilities requires the in-depth understanding of the "pluralistic aspect of female agency that enable women to mediate intra-household power relations in order to improve their opportunities for achievement of wellbeing" (Iversen, 2003, p. 100). Table 6.2 below provides a summary of each research participant's age, marital status and level of formal education, household composition and agricultural aspiration as per typology discussed in Section 6.4 above. The summary findings from these cases are described in Chapter Eight as an account of the reconceptualisation of the object of activity.

Table 6.2: Research participants, household composition and aspirations (2012)

HH Name	HH Head	HH Head Resident/ Migrant	Age	Marital Status	No of Residents	Education	Employment and/or social grants	Current Farming Typology	Aspired Farming Typology
HH1	Woman	Resident	60	Widow	3	None	Pensioner	Food Grower-Low	Food Grower-High
HH2	Husband	Resident	51	Married	13	Grade 3	Unemployed	Food Grower-High	Food Grower-High
HH3	Husband	Resident	56	Married	8	Grade 4	Unemployed	Food Grower-High	Cash Farmer
HH4	Woman	Resident	60	Divorced	8	None	Pensioner	Food Grower-Low	Food Grower-High
HH5	Husband	Migrant	23	Married	3	Grade 8	Unemployed	Food Grower-Low	Food Grower-High
HH6	Husband	Migrant	30	Married	3	Grade 6	Unemployed	Food Grower-Low	Food Grower-High
HH7	Woman	Resident	38	Widow	4	Grade 9	Unemployed	Food Grower-Low	Food Grower-High
HH8	Woman	Resident	60	Widow	5	Grade 8	Unemployed	Food Grower-High	Food Grower-High
HH9	Husband	Resident	53	Married	8	None	Unemployed	Food Grower-High	Cash Farmer
HH10	Mother	Resident	30	Single	8	Grade 7	Unemployed	Food Grower-High	Cash Farmer

6.7 Summary of contradictions in the Lutengele sustainable livelihoods activity (small-scale household food production)

This section seeks to address research goal 1c by summarising the tensions and contradictions found in the Lutengele agricultural practices in order to better understand the limitations faced by the subjects of activity (the women's group) in achieving their food production aspirations, and thereafter; to inform the expansive learning and capabilities development processes. Contradictions have been surfaced from the analysis of the second generation activity system as depicted in Figure 6.4 above and derived within the appreciation of how they came about over time. Tensions, contradictions and dissonances are fertile ground for the expansion of the practices under discussion and the learning of the subjects of activity. Engeström and Sannino (2010) pointed out that primary contradictions occur within the elements of the activity system; secondary contradictions are between two or more elements of the same activity system; tertiary contradictions occur between the reconceptualised new version of an activity system and remnants of its older version; and external quaternary contradictions occur between multiple interacting activity systems. The contradictions were analysed in light of participants moving from low production to higher productivity and cash income as per typologies described in Section 6.4 above. Should the participants have aimed for a higher aspirational capacity such as commercialisation; the contradictions, and thus the strategies, solutions and associated capability learning pathways (Chapters Seven and Eight), would have most likely been of a different nature (e.g. more emphasis on technical skills and equipment; bulk water supply; land tenure issues, etc.). The twelve contradictions found within the activity system are discussed in the following sections. These contradictions underpin the foundational contradiction (*Contradiction #C0*) which presents a contextual dichotomy between the endless opportunities presented by local ecosystems and the services they can provide towards agricultural productivity in terms of water availability, arable land, etc. and yet the high levels of poverty and food insecurity still prevailing in the area.

6.7.1 *Foundational contradiction #C0*: Food insecurity (of the subject) versus an array of agricultural opportunities based on natural resources available such as land, natural fertiliser, water from Umzimvubu (tools)

As mentioned earlier, Sections 6.2.3 and 6.2.5 presented the socio-economic and food insecurity levels faced in the Lutengele villages. On the other hand, Section 6.2.7 and Section 6.2.8 alluded to the year-round abundance of water in the Umzimvubu River flowing along the Lutengele villages as well as the local availability of arable land and easy accessibility for both women and

men. This foundational contradiction encompasses the inability of local people to turn these resources into agricultural capability and well-being. The turning of resources into productive use, as described in the sections above, has been restricted by the lack of critical conversion factors such as functioning institutions at the level of the women's group as well as local leadership, the dysfunctional delivery of basic infrastructure; the limiting literacy and capacity of the group themselves, the effect of climate variability on the flow of more accessible water bodies such as springs; etc. These factors or contradictions inhibiting food security and human development for the area of study are described in the sections that follow. By addressing some of these contradictions with the formulation of novel solutions and strategies, the farmers group has moved closer to the expansion of the object in attaining their agriculture aspiration. This process and outcomes are described in Chapters Seven and Eight.

6.7.2 *Contradiction #C1: Current agricultural activity practices (object) versus the local trend to more sustainable practices (object) – primary contradiction with some tertiary elements*

The data presents evidence that there was an emerging trend among some participants to employ farming methods in line with the orientations of ecological sustainability reflected in the adoption of water harvesting and conservation methods such as mulching as well as natural soil fertilisation among others. However, despite the various agro-ecology and rainwater harvesting initiatives driven by development NGOs in the area over the years, land degradation, poor water management and soil conservation practices were still apparent (see Section 6.3.3) resulting in a negative biophysical cumulative effect on the landscape or catchment of the area. These approaches are contradictory to the past traditional natural resource use and utilisation rules (see Section 6.2.10). The introduction of westernised orientations to agrarianisation and land use planning policies changed the course from traditional agriculture and natural resource management to a more conventional one influencing the agricultural routines of the farmers and the unsustainable ethos of government funded development initiatives (see Section 6.3.1).

6.7.3 *Contradiction #C2: Enabling government policies on water provision (rules) and water rights versus lack of water infrastructure (including water storage) (tools) – secondary with quaternary implications*

Despite the comprehensive legislative environment in South Africa concerning water provision and water rights to all citizens of the country, strategic interventions and policy rollouts have not reached where they should (e.g. Water Allocation Reform (WAR) policy of 2008) - Section 6.2.4,

Section 6.2.7. Although there have been some good attempts in the form of the DWA Resource-Poor Farmers Subsidy in the Lutengele area, the initiative only extended to a few households with the provision of roof-water and surface-water collection and storage systems leaving the majority of its population water poor (see Section 6.2.7). Water infrastructure was viewed as a critical investment to support local crop production aspirations which depend on water availability for both production and domestic use through out the year (see Section 6.4). Coupled with this, the establishment of the Eastern Cape Catchment Management Agency (CMA) and Catchment Management Forums (CMF) presented unclear direction with the Department of Water and Sanitation not showing the way in which these institutions could implement water resource management and provide regional bulk infrastructure (see Section 2.4 and Section 6.3.3).

6.7.4 Contradiction #C3: Water deprivation and security (tools) versus an array of water sources nearby (tools) – primary contradiction

The water sources available in the Lutengele area, including the Umzimvubu River, could provide a practically unlimited supply for local use in excess of all demand. Given that the homesteads and most farming activity are situated on the hilltops, the main water sources were found too distant and difficult to access. When water is available, productive water use (both crop production and livestock) dominates water consumption patterns despite the other basic domestic needs (Section 6.2.7) putting people's personal needs at risk. Due to the lack of reticulated water, the steep terrains and the distances from the main sources, the charges for water are excessive roughly 100 to 200 times more expensive than typical urban tariffs in South Africa. Incidents of safety when fetching water from these sources have also been reported (e.g. several drownings and women being intimidated by intruders). The poor level of water quality and quantity in the springs also plays a role in local water security and local disputes around unattended livestock using the springs as water points (Section 6.2.7). Tensions regarding the rationalisation of water and access in the springs have also been reported as a "first-comes-first-served" rule leaving some deprived of household water. In brief, the water situation at the villages is one of severe water shortage that coexists with abundant resources contained in water bodies that include major rivers and springs. Limited access to irrigation water was reported as high-ranked limitation for intensive production and in the context of the *igadhi* and *isitiya* (farming land with the *umzi* boundary), water was cited as the primary restriction.

Water [...] is key for development. We rely on rain water from God. Produce becomes nothing without water. Water is a great challenge. We rely on rain! (Contextual profile interview #CPI3)

6.7.5 Contradiction #4: Availability of productive land (tools) versus lack of utilisation or maximisation (division of labour) – secondary contradiction

Evidence shows that land is not a problem in Lutengele (Focus group #FG1_14). Everyone whether male, female, married or not, has the right to access land to build a home, raise a family and cultivate the land. However, much land lies underutilised. The fields had not been used for such a long time that families had even forgotten they had them and where they are located. The reasons for unutilised fields are various and include lack of fencing, distance from households, lack of irrigation, lack of farming equipment, the theft of crops, to name a few. But for most female-headed households, the lack of husbands or husbands working away from home was cited as one of the main constraints (Denison, 2015, et al., 2015, p.193) – see Section 6.2.3 and 6.2.8. Additionally, young people moving to the cities in search of work and opportunities, has left the area under resourced (Section 6.2.3). This is illustrated by the Lutengele headman below:

There is also arable land in Lutengele but underutilised. It depends on people to work on the land. Subheadman has agreed and wants to develop it but no people to do it. Also, young people are going up and down looking for jobs. They have an opportunity here. There is money in this land!. Money is here, I also have to sustain myself here with this land. It needs more development. (Contextual profile interview #CPI3)

6.7.6 Contradiction #C5: Climate variability (rules) versus resistance to adaptation or application of traditional methods (*Ukuhlakula*) (subject) – secondary contradiction

Climate variability is exacerbating production (see Section 2.2.4) and planting patterns, as well as lowering the level of river and springs flow, particularly during the dry season. The water tanks have been reported as drying out between June to August, sometimes even longer (Focus group #FG1) - see Section 6.2.7. Despite this water challenge the local farmers have given away their traditional water and soil conservation methods such as *Ukuhlakula* for the cultivation of maize. Although the respondents recognised that traditional methods and practices had worked positively from generation to generation and in harmony with their natural environment, there is a general resistance to reinsert *Ukuhlakula* back into their way of farming (see Section 6.3.1).

6.7.7 Contradiction #C6: Array of support extension and resources (including farmer network) (tools) versus insufficient uptake of applied practices (knowledge and skills – human capital) (tools) – secondary contradiction

Agricultural capacity development and learning in either the form of formal, non-formal or informal, have prevailed in Lutengele over the years. These included training workshops, learning exchanges, peer-to-peer interactions, cross visits from household to household and the

learning interactions among group members and the leader and the group and other farming communities through the Master Farmer's programme. Capitalizing on these knowledge networks and systems has not taken place (see Section 6.3.3). Notwithstanding these efforts from the observations, surveys and participants' self-assessment, it was indicated that practical aspects in the development of the activity were lacking in some household gardens such as run-off not being used and water conservation methods not effectively applied (Section 6.3.3.7). Also it was evident that there was a need for ploughing methods that would not disturb the soil (e.g. conservation agriculture methods such as no-tillage) – see Section 6.3.3. Other gaps included diversification of high-value and cash crops (e.g. spinach, cabbage, carrots, onions, tomatoes, beetroot and potatoes), which require new knowledge and skills to manage them. The high soil fertility needed for vegetable production requires more intensive fertility management responses (manuring, composting, supplementary fertiliser) and plant protection with relatively few farmers possessing these skills (see Section 6.3.3.7). Seeds for vegetables were not kept from the previous season's crop and it also requires new knowledge in order to break the dependency on the external market at a high cost (Section 6.3.3.4). Literacy and exposure was a further constraint, as more complex or technical solutions to sustainable farming did not easily arise from the group or locally without the co-development with other partners (see Section 6.3.3 and Section 6.2.6).

Soils are good. There are not people doing organic farming with kraal manure and aiming for commercial production. (Contextual profile interview #CPI3)

6.7.8 Contradiction #C7: Change in social fabric (Rules) versus labour availability (division of labour) locally (including the loss of meaningful *ilima* practices) – secondary contradiction

Male migrancy to cities and mines for employment opportunities has left the burden of hard farming chores such as ploughing and clearing the land largely to women, children and the elderly. Old age contributes to the withdrawal of the elderly from active farming, especially on arable fields which in most cases are located away from the homestead. To further worsen the labour problem at these sites, the youth are moving away from farming activities, as has become the trend broadly across South Africa (StatsSA, 2012). This leaves women as the final, principal labour force. Besides the reality that some of the farming activities such as land clearing and ploughing, are often too hard for women, women also have to balance time for farming with attending to their multiple domestic chores, including cooking, fetching water, and attending to children. Women are balancing time for farming and domestic chores, including collecting water

which adds to their triple burden (see Section 6.2.3). Despite traditional systems of people assisting each other with cultivation such as *illima*, this approach was viewed as not effective in current times and too costly to host the working teams, and that other alternatives like labour hire was considered too expensive (see Section 6.3.1). Labour constraints restrict farmers from achieving their goals and aspirations (Focus group #FG1).

6.7.9 Contradiction #C8: Local income generating programmes, social grants and micro-financing and loan services (tools) versus the inability to afford and taking risks (subject) for investment in productive resources or inputs — secondary contradiction

Lack of sufficient financial capital to support farming activities to purchase inputs and resources affects farmers' agricultural capability. The area has limited income-generating opportunities, and financial capital is extremely low, as evidenced by the socio-economic survey. Despite the different sources of income from social grants, remittances, local employment at government driven public works programmes and other piece-jobs, farming is constrained due to lack of investments inputs (seedlings, seeds, etc.) and equipment. For successful produce and income, a food grower at the level of high production needed a monthly investment of approximately R500 - R1 000 into the *isitiya* and *igadhi*; whereas a food-cash farmer should be aiming for R2 500 - R4 000 and would be based in the *isitiya* and *igadhi* and *amasimi*. Taking loans from local micro-financing and loan services was not a common practice; households did not want to shoulder the risk associated with the loan repayments.

Water

Although households in Lutengele have previously obtained support from the Resource Poor Farmer subsidy, and have significantly benefitted from those systems which were still fully operational during the time of the study, six years later, the group (through their NGO partners or local leadership) had not been successful in mobilising further support. Investments into water infrastructure were mainly directed for household drinking water storage systems such as containers and water tanks.

Fencing

Fencing was reported as one of the largest constraints at the site (see Section 6.3.3.3). Due to the farmers' inability to fence their arable lands, stray domestic animals, mostly cattle and goats, destroy the crops. This has disturbed farming efforts where farmers cited a lack of fencing as one of the dominant reasons for stopping field cultivation. The fertile alluvial and wet banks of

the Umzimvubu River were largely unused because of the fencing problem, though reasons cited also included crop theft, safety and labour, to name a few. Lack of effective fencing also affects farming in the *igadhi*, and some have resorted to using tree branches for fencing. This is prone to destruction by cattle, while small animals such as goats still get into the fenced field through the big gaps between the branches. Domestic animals are widely kept across rural Xhosa communities and they are an important component of livelihoods and socio-cultural systems of these communities. Amongst the Xhosa people, cattle farming dates back to pre-colonial times, and the practice is resilient and has adapted to different combinations of livelihood strategies over this period. In communal rural setups generally, and at these sites in particular, grazing lands are not zoned separately from arable and residential areas, as would often be the case in surveyed and planned betterment¹⁷ villages. Rather, pasture lands at these sites is among and between arable fields. In situations like these, any efforts to promote crop cultivation need to consider effective means of controlling animal movements, and in the long-term such efforts may have to consider cost-effective ways of sustaining a symbiotic relationship between crop cultivation and animal husbandry in these communities.

Labour and Mechanisation

It was reported that there were not enough cattle to plough the land (Section 6.3.3.6) and in some instances, people needed to hire tractors for land preparation (Contextual profile interview #CP1). Tractors were physically in short supply and very expensive. Labour for hire was also generally available but considered a very expensive way of farming, especially in light of the above reality that many farmers depend on social grants to finance their farming enterprises (Section 2.2.2). The general feel was that people would rather invest the little financial capital available into farming equipment. This view mainly depended on the aspirational goals and visions.

Transport

Investment into transport was also raised as the means to market local produce within the area, particularly in the town of Port St Johns. Transport as cited in Section 6.2.4, was regarded as

¹⁷ Betterment Planning was a major form of rural development planning which was implemented in the former 'homeland' governments in South Africa. It consisted of the development of 'land-use' areas and the division of the land into three types -- residential, arable and grazing. It also involved the relocation of people from their previous (usually widely dispersed) homestead sites to the new villagetype residential areas (MacAllister, 1991).

expensive and farmers depended on public transport to move their goods out of the villages as well as for bringing in inputs.

Seeds and seedlings

Financial capital for seeds and seedlings was reported as key to the expansion of the women's group agricultural capability. Access to seeds for vegetable crops and seedlings were dependent on the nursery at Port St Johns. Vegetable crops such as cabbage, beetroot, etc. were relatively new crops and it was also recorded that farmers were not able to grow their own seedlings effectively, making them reliant on the external market to acquire them, this being expensive and not of good quality (see Section 6.3.3.4).

6.7.10 Contradiction #C9: Supply of inputs by government departments (rules) versus local suitability (tools) – secondary contradiction

The external dependency on seeds and seedlings, as well as other inputs, has left the farmers vulnerable to accepting 'hand-outs' from government organisations no matter whether these hand-outs or resources were suitable or not. It was reported that on several occasions, and often driven by political agendas, the local agricultural government department delivered large quantities of poor quality seedlings and not in accordance with seasonal planting needs (Section 6.3.3).

6.7.11 Contradiction #C10: Access to local market in Port St Johns (rules) versus bulk production (subjects) to make it viable – secondary contradiction

The study revealed that although the women's group were willing to expand their market sales to the nearby town of Port St Johns, their low level of collective productivity did not make it viable to enter the market competitively. Instead, sales were focused within the village, at multiple small sales. Occasionally individuals would take bananas, maize, pumpkins and other crops to Port St John's for sale (Focus group #FG1). Due to the relatively low levels of production and small volume of local cash sales, there was generally no marketing problem at the time. Problems with marketing are anticipated in the future if more farmers produce in bigger quantities with the intention to sell – particularly for the more business-oriented farmers (see Section 6.3.3).

6.7.12 Contradiction #C11: Value chain and marketing support (tools) versus the non-focus of support interventions to date (tools) – primary contradiction

While agricultural support interventions have initially focused on food production, marketing (both for input and output) may become an issue to be addressed as the overall production steadily

increases and aspirational pathways go upwards (see Section 6.4). At the time of the study, the site did not support marketing of production beyond loose (informal, local, ad hoc) value chains as the more competitive value chain have not been part of their recent history or practice (Section 6.3.3).

6.7.13 *Contradiction #C12: Village collaboration efforts (community) versus the uptake by local leadership to promote development (community) – primary contradiction*

Another important tension is the one found between the collaboration between the local community and farmers group and the lack of political willingness and transparency portrayed by local leadership, both at the level of the ward committees and the senior traditional level, as reflected in the already mobilised resources and support (Reflexive diary #RD_05/05/14) – see Section 6.3.3. This has resulted in local mistrust from the part of the women farmers' group in engaging with these parties seeking for solutions to, for instance, their water infrastructure problems. Although some attempts have happened in the past, these were in vain and resulted in putting more trust in the NGO support as a reliable avenue to connect and represent the voices of the Lutengele people in other spheres of influence such as funders and provincial government agencies – see Section 6.2.9. Platforms for local voice of this nature seemed to be lacking in the area, especially for young women (Section 6.2.11).

Phase One of this study concluded by organising the contradictions analysed and described above into a set of key capabilities based on the farming domain and aspirations expressed by the research participants in relation to their sustainable agricultural activity. These system's capabilities for expansion of activity were therefore categorised as (see Table 6.3 below):

- a. being water secure;
- b. being able to use land effectively and being land secure;
- c. being knowledgeable and skilful for the pursuit of the envisioned agricultural practices;
- d. having adequate agricultural inputs and equipment;
- e. having access to labour to expand production;
- f. being able to invest in agricultural tools, equipment and other resources;
- g. being able to access the market value chain markets more competitively;
- h. moreover, additional capabilities based on the analysed contradictions were articulated as the moral-relational aspect of sustainability and ecological well-being (being able to practice sustainable agricultural practices); and lastly

- i. the capability of forming a group or institution that would host and embrace all these capabilities and generate collective agency through a process of learning for the transformation of the activity itself.

Each capability when put into practice (functionings) should perform a particular role in the whole farm system domain driven by the institutional set up, this being the women farmers group, and in harmony with the well-being of the Common Good. The level of the required functionings is confined by the higher or lower aspirations. For instance, being water secure for a high productivity food-grower may differ to those aiming to become food-cash farmers as the latter may require larger water storage systems to maximise production at the level of the *ighadi*.

Table 6.3: Sustainable agricultural capabilities from women's empowerment as successful household food producers rooted in cultural-historical, socio-economic, environmental and political contradictions

Capability	Systemic Contradictions
Foundational	Foundational contradiction #0: Food insecurity vs. an array of agricultural opportunities based on natural resources available such as land, natural fertiliser, water from Umzimvubu River
Moral/ Relational	Contradiction #C1: Current agricultural activity practices vs. the local trend to more sustainable practices · National ethical-political influence (as evident on how support is provided at local level) · Current trend to adopt ecological principles but still opting for mechanisation · Clearance of local vegetation leading to soil erosion - (i.e. local indigenous forest) to open up new agricultural land. Ploughing may generate soil erosion. · Slash and burn technique to open up new agricultural lands – run away fires and erosion · Invasive alien vegetation moving in as a result of cleared and vulnerable open areas · Cumulative effect of individual household practices (both garden and fields) on catchment
Institutional	Contradiction #C12: Village collaboration efforts vs. the uptake by local leadership to promote development · Food insecurity · Political mistrust and lack of transparency · Want to work with NGOs · Low local leadership to mobilise resources · Hesitance to collaborate with other villages · Voice – what structures are there?
Water Security	Contradiction #C2: Enabling Government policies on water provision and water rights vs. lack of water infrastructure (including water storage) Contradiction #C3: Water deprivation (all uses) and security vs. an array of water sources nearby · Lack of reticulated water · Insufficient water storage · Basic water supply policy but lack of water supply

• WAR policy of 2008, reform activities are being completed in an unsatisfactory way • DWA Resource-Poor Farmers Subsidy not reaching where it should • Effective RWH pilot project never rolled out • Unclear direction of CMAs and CMFs • Stuck in institutional disfunctionality • Lack of availability of abundant water bodies such as the Umzimvubu River • High level water drudgery and charges • Productive water use dominates household water consumption patterns despite other basic domestic water needs. Water collected prioritised for home consumption and animals • Climate change impacting production and planting patterns, as well as river and springs flow is low, particularly during the dry season • A few incidents of safety (e.g. water drowning and walking to/ working in fields) • Water quality in the springs is not always acceptable • Potential disputes towards access to water and unattended livestock	
Land Use and Security	<i>Contradiction #C4: Availability of productive land vs. lack of utilisation or maximisation</i>
• Under utilised arable land • Communal land tenure • Conflicts over livestock trespassing fields • Shortage of labour and changes in planting seasonality • Poor soil fertility	
Knowledge and Skills (Basic or Human Capacity)	<i>Contradiction #C5: Climate variability vs. resistance to adaptation or application of traditional methods</i> <i>Contradiction #C6: Array of support extension and resources (including network) vs. insufficient uptake of applied practices (knowledge and skills – human capacity)</i>
• Climate variability impacting production and planting patterns, as well as river and springs flow is low, particularly during the dry season • Loss of traditional knowledge and practices (e.g. ploughing) as new methods were introduced • Land area available or worked on not maximised to full production potential • Run-off not being used and water conservation methods not effectively applied • Difficult to plough with cows and keep contours and swales • New crops introduced (e.g. spinach, cabbage, carrots, onions, tomatoes, beetroot and potatoes.) which require new knowledge and skills to manage them • Learning from each other and from group leader and other networks and farmers not maximised by the group members • Low access to knowledge (e.g. pest control), resources and networks • Seeds for vegetables are not kept from previous season's crop. This is a new kind of knowledge and skill that had not yet developed • Literacy also a big constraint as new ways or more exposed decisions/ insights are difficult to come up with from the inside group	
Agri. Inputs and equipment	<i>Contradiction #C8: Local income generating programme, social grants and micro-financing and loans services vs. the inability to afford and taking risks for investment in productive resources or inputs</i> <i>Contradiction #C9: Supply of inputs by government departments vs. local suitability</i>
• Although some local income-generating opportunities, sometimes work not seen as appropriate for women to get involved	

	• A lack of adequate financing is constraining farming in relation to investments (fencing, water infrastructures) and inputs (tractors and mechanisation) • Fencing is costly and sometimes burnt down from veld fires as a result of the drought • Labour for hire is generally available but it is a very expensive way of farming, especially in light of the reality that these farmers depend on social grants to finance their farming enterprises • Transport too expensive due to distance and poor road infrastructure • Limited access to mechanisation and seeds and seedlings • Infrastructure and fencing too costly • Government handouts not adequate and perpetuating the dependency cycle • External dependency for seeds and seedlings • Lack of finance loan culture
Labour and mechanisation	Contradiction #C7: Change on social fabric vs. labour availability locally (including the loss of meaningful <i>ilima</i> practices)
	• Male migrancy, old age to carry out farming activities. Youth moving away from farming activity • Women balancing time for farming and domestic chores, including collecting water (triple burden) • Water drudgery: Despite the effort, water use in Lutengele households is high because people are agriculturally active in their homestead gardens and field • <i>Ilima</i> not working efficiently and too expensive • Labour for hire is generally available but this is a very expensive way of farming, especially in light of the reality that these farmers depend on social grants to finance their farming enterprises. • Limited access to mechanisation and tractors are physically in very short supply
Capital/ Finance	Contradiction #C8: Local income generating programme, social grants and micro-financing and loans services vs. the inability to afford and taking risks for investment in productive resources or inputs
	• Although some local income-generating opportunities, some work not seen appropriate for women to get involved • Lack of adequate financing is constraining farming in relation to investments (fencing, water infrastructure) and inputs (tractors and mechanisation) • Fencing is costly and sometimes burnt down from veld fires as a result of the drought • Labour for hire is generally available but it is a very expensive way of farming, especially in light of the above reality that these farmers depend on social grants to finance their farming enterprises • Transport too expensive due to distance and poor road infrastructure • Limited access to mechanisation manifests in two major ways: tractors are physically in very short supply and are expensive • Remittances unreliable • Seeds and seedlings are costly • Infrastructure and fencing also costly • Mechanisation expensive • Reliability on external funding, particularly NGOs
Access Value Chain Markets	Contradiction #C10: Access to local market in Port St Johns vs. bulk production to make it viable Contradiction #C11: Value Chain and Marketing support vs. the non-focus of support interventions to date
	• Farmers not growing enough high cash crops to enter market competitively • Main market centre too far and transport costly and scarce • Future focus on value-chains and marketing

The next phase, Phase Two, builds upon these capabilities by the method of interventionist workshops or Change Laboratories which aimed at strengthening the institution of the women farmers group and shifting the notion of “all we need is fencing then everything will be fine” to an appreciation of their collective capability to tackle the aforementioned contradictions in pursuit of expanding and recontextualising their object of activity at the material and mental plain. The formulation of relevant solutions and strategies as well as the transformative agency to take these strategies into a material reconceptualisation of the activity via the process of expansive learning cycle is described in detail in Chapters Seven and Eight.

6.8 Conclusion

This chapter has described the context of the agricultural activity from a socio-cultural, historical and a socio-economic and environmental perspective with a strong focus on the mediating role that culture, norms and traditions have on women's capability in the attainment of their aspirations and empowerment. A description of the individual cases pertaining to ten women food growers from the Lutengele villages can be found in Appendix D. The chapter has drawn on second generation CHAT in describing the main elements of the agricultural activity, including the evolution of the activity and learning, and the analysing of contradictions based on the prevailing agricultural aspirations of the subjects at hand. The chapter has also worked with the Capability Approach in articulating the key capabilities for agricultural expansion as expressed in the surfacing of systemic contradiction. These capabilities, together with their underpinning contradictions, are further analysed in Phase Two of the study, the expansive interventionist phase, as stepping stones for the generation of co-developed solutions and strategies via the method of double stimulation in a quest to expand the agricultural practices, agency and empowerment of the women's group.

CHAPTER SEVEN: EARLY STAGES OF EXPANSIVE LEARNING

7.1 Introduction

In this chapter I present the data generated during Phase Two of this study pertaining to the facilitation of the early stages of the expansive learning process with the women farmers' group from the Lutengele villages with the method of Change Laboratory workshops. The chapter intends to address the following research question and sub-questions or goals:

Can, and if so, how can expansive learning processes shape conversion factors for turning available resources into functionings that enhance household food security capabilities and ecological well-being?:

- *Collectively formulate, prioritise and describe valued functionings, resources and conversion factors necessary for improved household food security and catchment management/natural resource management (Goal 2a)*
- *Identify and describe expansive learning that shapes the articulation of functionings, and conversion factors that can turn resources into functionings that, in turn, expand the household food security and water stewardship capabilities -addressing aspiration-practice relationship (Goal 2b)*

In light of the above questions, the chapter commences by describing how the research participants engaged in discussions and analysis of their object of activity, crop production, in relation to the sustainability of the larger context or local catchment area (Section 7.2). As referred to in Chapters One, Two and Three, this study focuses on expanding the women's group agricultural practices and aspirations in a manner that would consider the well-being of the human or community well-being as well as the non-human environment or ecosystems that these activities depend on. By drawing on the primary contradiction relating to the sustainability of the agricultural activity (*Contradiction #C1*) outlined in Chapter Six, the participants engaged in a process of further analysis leading to advancing their common understanding of their shared object and motive for engagement in this light. Conceptual tools were used with, and by, the participants to better understand the interrelationships found in their social-ecological system or micro catchment. By looking at catchments as a socio-ecological system the participants were able to deepen their understanding about the mutual relationship between their object of activity and the well-being of their local catchment as mentioned in Chapter Two. As a result, these first expansive learning interactions led to the formulation of locally relevant sustainability principles or catchment management principles. These principles were also the reflection of a higher-level aspiration with regard to the collective notion of a Common Good as well as the collective

capabilities required for its attainment. The locally co-produced principles served as *stimuli* for the group's self-evaluation on their object of activity and associated valued capabilities, and on their development towards the Common Good or the good life as described in Chapter Three (Section 3.5.4). The principles were thereafter used as an *anchoring* second stimuli or mediating artefact by the facilitator during the subsequent expansive learning steps or epistemic actions as portrayed in Chapter Four Section 4.3.1.3. The newly developed double stimulation tool assisted participants to influence their joint decisions regarding the proposed solutions, examining whether these solutions were in line with the sustainability principles and finally reflecting whether the implemented solutions contributed towards the achievement of a Common Good as per the visionary principles or dimensions.

From here the focus of the intervention turned towards defining the spatial and stakeholder scope for engagement in transformative learning and development of activity which led to the abstraction of a 'germ cell' as the conception of strengthening the group's capability for the movement from aspiration to expansion of the object activity (see Section 7.3). The facilitation of the learning process proceeded, with the assistance of a research assistant and interpreter, by introducing the newly developed tool and the hypothesised contradictions identified in the activity system described in detail in Chapter Six. Contradictions were packaged as 'capabilities' relating to fertile ground for learning and the expansion of agricultural practices and aspirations with thorough socio-cultural and historical underpinning understanding. Contradictions up to this point were identified from the dialogical manifestations from a variety of participants during interviews and focus group discussions as well as from field observations and document analysis as captured in the data corpus. Contradictions were used as mirror data and served as driving forces for the ongoing evolution of learning, development and transformation. In this chapter contradictions are analysed further with the women's group or research participants regarding how they experienced these contradictions. Engeström and Sannino (2011) described this type of analysis as potentially being able to chart the participants' willingness to engage in expansive learning aimed at generating systemic transformation in the activity they are working on. These catalysing contradictions are categorised according to Engeström and Sannino's (ibid.) framework as conflict of motives and critical conflicts, double binds, dilemmas and tensions. The discursive manifestations of these contradictions and transformative agency expressions have been used to analyse the evolution of the learning process and expansion of capabilities. *Change Laboratory* workshops were used as a methodological tool for motivating and supporting the expansive learning process (Chapter Five). My intention was to work with the principle of double

stimulation in the workshops as a method to provoke participants' conflict of motives, chart the ZPD and nurture transformative agency and thus the expansion of the capabilities or functionings necessary for the achievement of the agricultural aspirations assumed by the group members and ultimately their empowerment.

Table 7.1: Overview of Phase Two Change Lab sessions; Follow-up Sessions and Discussions and Mini-cycles (Phase Two)

Change Labs/ Follow-ups/ Mini-cycles	Purpose	Date
CL1	Questioning the current state with Contradiction #1: Sustainability	21.06.16
CL2	Agree on a shared object: Identify the collective aspiration towards “the common good” or catchment management principles in the context of this study	22.06.16
CL3	Agree on scope for collective activity: Further questioning and analysis of the local sustainable livelihoods activity system with focus on water security “freedoms” and CMF implications	08.12.16
CL4	Analysing contradictions and prioritising capabilities	20.06.17
CL5	Modeling and examining solutions	22.06.17
FS1	Follow up on implementation and CMF formation	07.08.17
CL6	Introduction of material stimuli – trees	08.08.17 and 09.08.17
MC1	Mini-Cycle in CL6: RHW	08.08.17 and 09.08.17
CL7	Reflection on implementation and formation of a group – questions	20.09.17
MC2	Mini-Cycle in CL7: Three site demonstrations	20.09.17
FD1	Follow-up Discussion: Follow up on implementation x 2	
CL8	Introduction of material stimuli: water tanks	31.01.18
FD2	Follow-up Discussion: Follow up on constitution and implementation x 4	June 2018 to August 2018
CL9	Final reflection and consolidation	26.09.18

Expanding on Sannino's (2008) initial work, Engeström (2011) has identified five main types of emerging transformative agency, which are specific to, and characteristic of Change Lab interventions (Haapasaaari, Engeström & Kerosuo, 2016, p. 235): i) *resisting* the interventionist as criticism, questioning, opposition or rejection (Sannino, 2010); ii) *explicating* new possibilities or potentials in the activity; iii) *envisioning* new patterns or models of the activity; iv) *committing* to concrete actions aimed at changing the activity; and v) *taking consequential actions* or

reporting to have change the activity. This chapter describes the earlier stages of transformative agency of the research participants with agentive talk analysis that appears in combination evolving along the *Change Labs* moving from rudimentary discourses of resistance towards the envisioning or modelling and examining of solutions, as well as their commissive speech towards action (Section 7.4). The early stages of the expansive cycle comprised of five Change Labs (#CL1 to #CL5) including a Follow-up Session (#FS1). The process commenced in June 2016 with completion in August 2017 with some follow up on implementation of the collectively defined solutions. Chapter Eight captures the transformative phase of the cycle and the catalysing effect that new material stimuli had on the group's collective agency and collective capability. Chapter Eight presents the processes undertaken by the participants along the formative intervention by making the connection between agentive talk and consequential action in the form of concrete developmental transformations. This last phase of the expansive learning cycle concluded in September 2018 (see Table 7.1 above).

7.2 Co-defining local catchment management sustainability principles

The first Change Laboratory (CL) workshop was facilitated nine months after the closure of Phase One. The workshops built on the contextual and ethnographic data gathered over an almost three-year period since the start of the WRC research project in 2013 (see Section 1.3 in Chapter One). During this period I had time to carefully analyse the agricultural activity system drawing on second generation CHAT and surfacing the foundational and associated contradictions inhibiting the research participants from attaining their agricultural aspirations as described in Section 6.7 in Chapter Six. The gap between the two phases also provided me with the time for reflection and planning how to build on the work done as well as how to enter into an expansive learning process with the Lutengele group. The process commenced with locating the participants' food production and livelihoods activity in relation to their landscape or local catchment as 'place' of interrelations with the social and natural environment (e.g. land and water) and its sustainability. The first Change Lab therefore intended to be the first stepping-stone towards situating the participants' agricultural livelihoods activity and associated aspirations within the well-being of the "Common Good" or the local micro-catchment or landscape (see Section 2.4). The workshop aims were as follows:

- i. Reflect on food-water-land-climate-social justice nexus matters of concern, including notions of power relations and agency, by drawing on the WRC study conclusions and further dialogue with research participants in the geo-historical space-time-cultural context of the study area.

- ii. Collectively define the desired state in terms of what constitutes the 'good life' and its relationship to the 'Common Good' from the point of view of human activity, livelihoods aspirations and 'freedoms' in own practice and the wider social-ecological landscape.
- iii. Co-narration of the stories of learning and livelihoods capabilities evolving from the geo-historical space and cultural context over time.
- iv. Collectively prioritise what would be the most valuable capabilities and freedoms for people to be, do and become in relation to the re-imagined state and their core activity

The first Change Labs, #CL1 and #CL2, were held on 21 and 22 June 2016 at a homestead belonging to the women's group in Qoboshendlini. Although the invitation was extended to as many stakeholders as possible through the women's group leader and *sibondas* (traditional leaders), the attendees consisted of approximately 30 women mainly from the local group, the *sibondas*, two other men and two male youth. The stakeholder involvement and spatial reach (or 'community' in the activity system) was further analysed and discussed in Change Lab Three (#CL3).

The programme for these two days was structured into four main activities directed to further questioning and analysing of the object of activity in relation to its wider socio-ecological context and sustainability in order to collectively develop a vision and principles for the Common Good of the catchment, in which the core activity was situated, drawing on participatory mapping methods and past-present-future (historical) narrative approach (see Text Box 7.1 below). The activities were preceded by an introduction to the expansion phase of the study, Phase Two, by heightening the problematic situation in the object of activity derived from the systemic analysis of the food production activity and aspirations in the previous phase, Phase One.

Text Box 7.1: Change Laboratory Programme for CL1 and CL2

- Introduction to workshop and research study
- WRC Project Feedback:
 - o Individual livelihood and well-being aspirations
 - o Purpose driving livelihood aspirations
 - o Key agricultural livelihood capabilities
- *Activity 1*: Introduction to Integrated Catchment Management and People-Environment interrelatedness: Understanding what a catchment is and its interconnectedness to livelihoods and well-being (“Healthy Catchment” and Ecosystem Goods and Services)
- *Activity 2*: Map micro-catchment key features
- *Activity 3*: Analyse relationships between humans-water-land-sustainability, their cause-effects, significant changes over time and opportunities
- *Activity 4*: Develop a Catchment Vision and Principles with agricultural livelihoods as the main activity

These Change Labs drew on *Contradiction #1* which alludes to the *sustainable agricultural practices* as “current agricultural activity practices versus the local trend to more sustainable practices” (see Section 6.7) and in relation to the well-being of the local catchment. In this way I was able to enter into a social learning process with the participants by taking this primary contradiction of sustainability into double stimulation processes and amplify a reoccurring ‘critical conflict’ (or inner conflict of personal and moral nature) by reinserting a ‘conflict of motives’ drawing power on the primary contradiction of sustainability-practices tension found in Phase One. The newly developed stimuli in the form of sustainability visionary principles would thereafter be woven throughout the expansive learning process as a means to chart the ZPD in developing alternative possible solutions as well as in consolidating of the newly reconceptualised object of activity. The second *stimuli* or conceptual notion of the ‘Common Good’ was underpinned by four dimensions or guiding principles, namely: i) healthy and productive environment; ii) nourished/physical health; iii) basic needs; and iv) peacefulness and happiness (see Section 7.2.2). The following sections present a brief description of the Change Labs activities, #CL1 and #CL2, and discussions leading to the consolidation of the Lutengele micro-catchment visionary principles for sustainability.

7.2.1 Situating agricultural activity in local micro-catchment

7.2.1.1. Activity One in Change Lab One: Introduction to concept of catchments

The notion of 'catchments' as socio-ecological systems was introduced in Change Lab #CL1 and thus the interrelatedness between collective capability as relational to individual capability and well-being (see Section 3.5.1 on individual and collective capability), in other words, the dialectical nature of people-environment relationship (Section 4.3.1.1). The concept was introduced as a term to encompass the participants' connection with their landscape as 'sense of place', this is, how people see themselves in the landscape and their relation to it. It includes the interconnections between their agricultural activity to land, water and the wider environment. The people of Lutengele shared a very rich relationship with their natural environment and its resources such as animals, birds, water sources, rain, grasslands, wetlands soil and forests. Although 'catchments' did not exist as a concept in the local language, the term was reconceptualised as an '*ikheshi*' and participants were able to make the connections between themselves, their core shared activity and their landscape (#CL2). Explanations were as follows:

The catchment area is where the streams flow and water is caught up. The catchment area makes the forest be healthy and makes food for consumption. The water keeps us healthy. (Change Lab #CL3)

A catchment is where the river flows into, where the water is caught up coming for the higher point to the lower point ... the water catchment helps with irrigation, provision of water and keeping the gardens green. (Change Lab #CL3)

A catchment area is where water gathers after flowing. The purpose of the catchment is to provide water for irrigation, animals and people to cook and drink. (Change Lab #CL3)

7.2.1.2 Activity Two in Change Lab One: Participatory mapping.

This activity involved the use of auxiliary stimuli in the form of a series of tasks directed towards mapping the local landscape or micro-catchment encompassing the two participating villages in Lutengele. The participatory mapping activity guided the research subjects with the co-construction of their local landscape (see Picture 7.1). My intention, as a formative interventionist researcher, was to trigger participants to think and act differently about the object of activity and start to build a new model for the future in a long chain of actions as reflected in the reconceptualisation of their central object of activity, the sustainability in the food production activity. Activity Two was carried out in two steps:

- Step One: Demarcate physical/traditional leadership boundaries of the villages/catchment area.
- Step Two: Identify features (natural and built environment) and develop legend.



Picture 7.1: Participatory mapping activity offering contemporary ethnographic data on the landscape of activity



7.2.2 Locally developed visionary principles of sustainability for engagement in agricultural activity

7.2.2.1 Activity Three in Change Lab One: Questioning, analysing and visioning changes in the catchment.

Based on the jointly produced map of the Lutengele area, the research participants were prompted by the research facilitator to describe the current state of the catchment through a collaborative historical analysis of their landscape and agricultural livelihood changes.

Facilitator: Regarding all the resources and features that you see on the catchment drawing, which features do you think have changed?

The research participants reported that some changes in the landscape and way of living shifted as they experienced variations in local rain patterns from a predictable all-year-round gentle precipitation to scarce, erratic and often stormy rains. The latter tends to generate heavy run-off leading to the generation of gullies, flooding rivers and siltation of streams. The respondents also noted that the increasing scarcity of rain was leading to the drying up of critical water sources such as springs whose water is used for domestic functioning including cooking, bathing, laundry, dishwashing, brewing *mqomboti* (traditional beer), etc. Because springs were drying up, villagers, especially women and girl-children are forced to walk long distances to the Umzimvubu River to fetch water and in the process, subject themselves to all sorts of social dangers including murder and rape. Not only this, but much of their time is consumed in the water fetching exercise. Additionally, the lack of rain was forcing people to share water sources with animals such as cattle and donkeys, heavily compromising the quality of water for human consumption (see

Section 6.2.7). Changes in local biodiversity such as indigenous forest and the availability of wild fruits were also noted:

In the olden days we used to have thick and big forests. And there were good rains. Now when you walk in forests you see the ground is dry and the forests are patchy because of persistent droughts. (Change Lab #CL1)

The decrease of the water table resulted in the extinction of some indigenous plants and in turn wild fruits. Historically wild fruits have played a very important role in the lives of the local people. Besides providing food, wild fruits are medicinal; they cure and immunise against certain ailments. Walking into the forests looking for fruits has been a critical social role in that it gave villagers, especially girls and boys a chance to hide from public eyes, meet, court and date. The harvesting of wild fruits and vegetables (*imifino*) has a very elongated history in these villages so much so that it became part of people's venerated traditions. The ripening of some fruits and appearing of some wild vegetables were read as symbols showing changes in seasonality such as the arrival of summer and thus indicating the time to plant maize. These dependencies helped people to live closer to and understand nature. The participants also alluded to the opening of new gullies (*dongas*) from inappropriate land use practices which disturb the vegetation cover leaving the ground bare and vulnerable to soil erosion. In addition, transformations in people's way of living and practices were tied to the introduction of vegetable production in the early 2000s (see Section 6.3.3). The respondents indicated that with the arrival of vegetable farming their quality of life changed for the better, especially now that they were able to save time as gardening at home took less time than going to the fields. Home-based gardening also assists with the family food and nutritional needs:

When my children are hungry I just go into the garden and fetch spinach and tomatoes and then feed my children. (Change Lab #CL1)

Gardening has also kept some women busy and out of trouble, as some respondents indicated:

Women used to go around in the village doing gossip because they were not busy, now no one has time for gossip, all women are busy in their gardens. (Change Lab #CL1)

In the olden days there were women who used to wake up in the mornings and go straight to drink beer, now there is no longer that because they are now going to work in gardens, water and plant. This is helping us and their husbands. (Change Lab #CL1)

Activity Three, to some extent, was an opportunity to deepen and engage the data generated in Phase One for the construction of the case study of the Lutengele agricultural activity as presented in Chapter Six as well as to expand our understanding of the area and activity. In sum,

the responses posed a great emphasis on the scarcity of rain and the dependencies on water for the well-being of the human and non-human resources as well as the reciprocal co-existence between humans and their local natural resources. Activity Three led to the joint development of a set of locally developed principles (Activity Four), which acted as a 'anchoring' tool for further progression and reflection through the expansive learning process, especially with regard to modelling, examining and implementing solutions against sustainable practices over more conventional ones.

7.2.2.2 Activity Four in Change Lab Two: Visioning and guiding principles.

Building of the participatory mapping activity and narratives from the analysis of current and historical changes of the Lutengele landscape and local agricultural activity, Activity Four in Change Lab #CL2, focused on the modeling of visionary principles rooted in the local understanding of what the 'Common Good' should look like and do (ecosystem services). The participants engaged in a visionary exercise by responding to the following question:

Researcher: What would you want to see the landscape/catchment look like in the future?

The respondents, after having time to discuss with each other in groups of approximately ten people, reported that (Change Lab #CL2):

- *The landscape must be healthy i.e. it has to have lots of green trees and grass.*
- *The landscape must restore its fruit and wild vegetable repertoire that it used to have in the past.*
- *It has to have quality flowing water in rivers and springs so people and animals (livestock) can get enough supplies.*
- *There has to be constant rain patterns so people know when to do land preparations and plant, and which crops to plant.*
- *The landscape has to be free of invasive alien plants.*
- *There has to be enough water supply, with for instance, water tanks systems.*
- *The landscape has to be free of soil erosion.*
- *There should not be veld fires, or when they happen they have to be strictly controlled.*
- *There has to be good grasslands that provide quality pasture to our livestock.*
- *People have to be healthy, happy and live in peace.*
- *There must be safe homes where people live in safety, free of fear of crime.*

From the above testimonies, the vision of the Lutengele catchment or landscape was consolidated and presented as “A productive catchment” with

- i. healthy water sources and water infrastructure;
- ii. healthy forests (green, free of invasive alien plants and abundant wild fruits);
- iii. healthy soil (free of soil erosion);
- iv. healthy grasslands (no veld fires and good pasture);
- v. healthy and happy people and animals; and
- vi. a safe place (free of crime).

In sum, *Activity Four* led to the co-construction of a second stimuli or anchoring device for reflection and evaluation along the expansive learning process. The vision and principles outlined above assisted participants to further analyse contradictions, model and examining solutions using this new double stimulation tool. The tool also served as a framework for the reflections on well-being and valued ‘freedoms’. The visionary principles were brought into Change Lab #CL3 as a mediating artefact to trigger discussion in order to organise activity along these principles. In Change Lab #CL4 participants were able to co-design novel solutions for their agricultural activity drawing on this tool resulting, for instance, in the recognition of the appropriateness of re-introducing sustainable planting practices such as *ukuhlakula*. Also, in reflecting on the value of farmers maintaining a safe, peaceful and harmonious environment, a participant reiterated the following:

It's definitely [the principle of keeping peace and harmony] in the ranks of important, because I can't be a farmer who cannot get along with people; who doesn't have love or peace. Having peace is the one thing that makes a person a person. It protects your life. (Change Lab CL#4)

As a formative intervention researcher, I brought the catchment vision into the start of Change Lab #CL6 and #CL7 as a tool for ongoing reconceptualisation of the agricultural and livelihoods activity as well as a reflection tool to analyse progress on the group's proposed solutions (#CL8). The final reflection on the groups' accomplishments around their activity and the impact of these on the well-being of the social-ecological system or local catchment (see section 8.5) was also conducted with the new double stimulation tool in Change Lab #CL9.

The formation of collective values for the ‘common good’ or well-being of the catchment, stemmed from the epistemological learning actions or pathway supported in the step-wise Change Labs facilitated during this intervention. The development of a *Moral/Relational Capability* for sustainability and the Common Good was initially triggered from mirror data or

Contradiction #C1 and nurtured through a deliberative democratic process, as advocated by Sen and his colleagues (Section 2.6.5). The deliberations provided an opportunity for the participants to engage in identifying and clarifying their values in relation to agricultural practices and approaches, Natural Resource Management, and ultimately relational well-being.

Another tool that was mobilised in support of activity expansion was the formation of a Catchment Management Forum or village-level network for the Lutengele area (as a sub-catchment of the Umzimvubu River evolving from the farmers group) as an avenue to advance the food production activity through partnership development and associated inputs. In this way, this study could have brought other stakeholders and activity systems into a learning process of *Third Generation* CHAT. However, a critical turn for this study took place in Change Labs #CL3, #CL4 and #CL5 as described in Section 7.3.

7.3 Strengthening local institutions for engagement in transformative learning

7.3.1 Defining the spatial scope and stakeholder participation for engagement in collective activity

Due to the lack of representation from other activity systems and stakeholders in the visioning process for the Lutengele area during Change Lab #CL1 and #CL2, and the intention to initiate discussions around the establishment of a local forum; the next step was to define the socio-spatial scale and stakeholder extent (Engeström, 2020b) for the catchment in view and its related activity systems (e.g. local government, traditional leadership, etc.). In other words, it was necessary to consolidate the geographical reach for this intervention including the affected stakeholders and actors involved in the expansion of the central agricultural activity herewith investigated as part of this study before proceeding with further step-wise epistemological actions. As noted in Chapter Two, the study adopted an Integrated Catchment Management approach or Watershed Development framing to situate the women's group small-scale agricultural activity given the centrality of water in sustaining the activity. Catchment management policy and practice suggests that plans and solutions are to be formulated through stakeholder engagements and geared for natural resource managers and users to work towards the enhancement of human and economic development as well as environmental protection in a catchment (Section 2.4). Chapter Two also refers to the policy tool that encourages formation of *fora* such as a Catchment Management Forum as an organised multi-stakeholder institution

for the deliberation of strategies, democratisation of water resources, voice and agency platforms (see Section 2.4.1).

The women's group leader together with a WCFFO representative, the local senior traditional leader and myself as a researcher/development practitioner, attended a workshop in Mthatha on 21 January 2016 organised by the Department of Water and Sanitation (DWAS) on the developments regarding the new legislation and strategic directions of the Catchment Management Agency for the Eastern Cape. This workshop set the scene for the Change Lab Three (CL3). In this light, it was also my intention, as part of this study, to mobilise local stakeholders and actors to consider, as proposed by DWAS, working towards the establishment of a forum of this nature and build on the already founded women's group through the facilitation of an expansive learning process or formative intervention. In this way I would have mediated cross-boundary learning interactions with different activity systems, third generation CHAT (see Section 4.3.3.3), working on the improvement of sustainable agricultural practices along the lines of water and land resource management in the Lutengele area.

With the above in mind, on 8 December 2016, I facilitated the third Change Lab #CL3 with the assistance of an interpreter. About 25 research participants attended the event to discuss the socio-spatial reach of their activity and thus their willingness to expand the stakeholder base and the number of productive households from neighbouring villages. The questioning and investigation on the institutional make-up and functions of the group started by drawing on the *Foundational Contradiction* (*Contradiction #C0*) as mirror material. The foundational contradiction reflects the high levels of food insecurity found in the activity's context despite the wide array of untapped agricultural opportunities available or derived from the wide range of local ecosystem or natural resources accessible locally such as land, natural fertiliser and water from the Umzimvubu (see Section 6.7.1 for detailed description). This contradiction coupled with *Contradiction #C12*, local collaboration efforts versus the lack of support by local leadership to promote development, was also presented to the participants with the intention to trigger discussion regarding the possibility of strengthening local institutional arrangements in order to collectively gain voice, power and local change and transformation (Section 6.7.12). The idea of expanding the group both spatially and in terms of membership generated explicit conflicting views among participants. *Conflicts* in this sense were defined by Engeström and Sannino (2011) as taking the form of resistance, disagreements and refusal of proposals to the detriment of other alternatives. The majority of the participants were not in favour of inviting the local leaders into

the process as there was still a deeply rooted mistrust due to the lack of transparency and past unpleasant events on the part of such individuals in 'power' as reflected in the hypothesised *Contradiction #C12*. At the same time, the group was also hesitant to extend the reach and collaborate with other villages at this point in time as they were not prepared to share the potential benefits of our interventionist research interaction with other food growers from neighbouring villages:

Researcher: My question is ... with this in mind, with this problem in mind [water] ... I would like to ask you ... is a catchment management forum for this catchment a good thing? You know what this is ... who they report to ... what would the CMF should do? How big should the CMF be, what area should it encompass? Who should be involved, just you or more people? Who should be part of managing this catchment? (Change Lab #CL3)

Woman A: (...) the area is a big area but we are content to work as a group as we are. We still have some pending issues before other guys get in ... the area should remain as it is, no expansion! (Change Lab #CL3)

On the other hand:

Woman B: [we] ... would like to involve other areas so there would be stronger voice ... we want more involvement of government, councillors and NGOs ... It is a brilliant idea to form a forum that would be inclusive of all stakeholders, to have a united voice and message. (Change Lab #CL3)

In summary, there was consensus in forming a forum for stronger voice but disagreement on scope and stakeholder participation and the problem being the sharing of benefits with newcomers and political nepotism. It was also noted that the ward demarcations, as pointed out in Section 6.2.9, could end up in people being split into different local municipalities (and ward councillors) after the municipal elections:

There are some technicalities regarding demarcation, and when the forum is formalised it would include, let's say, ward nine. But then after the election, another ward will come on board because of the demarcation, because of the voting size. And then people who would be initially in that area may be excluded. (Change Lab #CL3)

The problematic situation escalated in Change Lab session four (CL4) when *Contradiction #2* and *#3* focusing on water deprivation and infrastructure was presented as mirror data. This led to the construction of a *double bind* when participants were not able to find a way out for the mobilisation of water infrastructure and services due the lack of local institutional support outlined above and as captured from the discussion in Change Lab #CL3. A double bind, as portrayed by Engeström and Sannino (2011, p. 374) is a discursive manifestation of contradictions that

indicate a cul-de-sac, in other words, “a pressing need to do something and, at the same time, a perceived impossibility of action” supported with rhetorical questions such as “What can we do?!”

During the Change Lab #CL4 aimed at deepening and analysing the contradictions surfaced in Phase One through the ranking of valued capabilities for agricultural expansion (see Section 7.4 below), the group confirmed that through the years there had been inappropriate support from their leaders either manifested in lack of interest to assist or in providing unsuitable infrastructure or solutions to their water security problems:

Group leader: When we were on the points of water infrastructure and water deprivation, I had mentioned that we have tanks here that they [the municipality] had installed years ago. These tanks are empty and they never filled them. They were put in Tyityana and they just sat there in the road, empty. (Change Lab #CL4)

The group also felt that they could not bypass the local leadership structures, as they would be sent back and follow procedures and protocols as captured in the following citation:

Researcher: Do they feel they need another platform maybe to, to organise themselves and to, you know, to take their problems to?

Woman: We wouldn't know where to go. It's our leaders who normally go for us and so we can't bypass them to go to the top person. We reach them and be told to go back to our leaders. (Change Lab #CL4)

There was a sense of aggravation and frustration emerging from the group:

Group leader: Yoh! They've been treating us like fools for a long time ... These politicians will promise to do something for you just because they want a position and they never do it. Many people have passed away with nothing ever getting done. I myself have personally gone to the mayor and asked him for water in my village. I was still in the ward committee then. He heard me and said he'd help me. I even met other government officials and they promised me the same thing. They disappear once they get votes and get a seat in government. (Change Lab #CL4)

Group leader: Let me tell you something painful Thokozile: in this village people pass away and there's no water. The makotis have to go fetch water at Mazimkwali [place with local communal tap approximately 10 km away]. Do you know where that is? They get there and there's no clean water. We have to get people from the outside to get water for us. So I don't think we have a representative in our politicians who will stand for our issues and concerns. (Change Lab #CL4)

Group leader: You must write that name. Vongxo-vongxo. Please! That tap's name is vongxo-vongxo. When we are going to fetch water, we say we are going to vongxo-vongxo. You're going to work! When you report there, you must produce that name; vongxo-vongxo. We've suffered a long time.

Woman: You know, if you arrive there when the sun is scorching hot? You'll twist the tap until you give up. (Change Lab #CL4)

The way out of their double bind pointed towards making alliances with trusted organisations such as the NGOs that had provided support over the years (e.g. WESSA and WCFFO) as well as the research group who in the minds of the participants were one and the same. This sentiment is portrayed in the quotations extracted from Change Lab #CL3 and #CL4:

Woman: We need the involvement of the NGOs and we have no faith in other officials, government departments and the politicians [applauses]. (Change Lab #CL3)

Group leader: It's important. It's very important to get help from outside. We trust NGOs because as we sit and work with them, they are with us, they know our struggle. They come with us when we do our activities like getting water from the river. We've been promised a proper plumbing system for a long time; I'm sure it's about ten years ago ... I've been to a meeting in Mthatha, at the PRD. The Minister of Water and Sanitation was there. At that meeting, they said they can put pipes in for the people, but to this day we don't have water. Instead they bring us tanks. This issue must be taken forward to parliament. They brought those tanks very quickly around election time because they want us to vote for them. They don't put water in the tanks; they bring them empty. That's why we say we don't want politicians' help. We prefer help from NGOs. (Change Lab #CL4)

Man: There are tanks in Tyityana that were delivered there a long time ago. They are still sitting there today empty. We need another solution from you guys [NGOs/Researchers] because the councillors and the headmen are unhelpful. Tell us how we can move forward from here. We are really struggling when it comes to water. (Change Lab #CL4)

Woman: We would appreciate it if you would go there [to the provincial offices]. (Change Lab #CL4)

Group leader: Can you please give us advice? (Change Lab #CL4)

The aforementioned discursive contradiction or double bind continued to surface along the interventionist learning process but it was during the modelling of solutions sprouting from the water deprivation related contradictions (*Contradiction #2* and *Contradiction #3*) in Change Lab Five (CL5) that the group started to shift their gaze inwards and break away from the dependency placed on external and dysfunctional organisations to their water challenges. The realisation was that the resolution of a 'double bind', as indicated by Engeström and Sannino (2011, p. 374) required collective and transformative actions often expressed as a sense of urgency such as "we must", "we have to", "let us do that". The group realised that by gaining strength in working together they could create benefits (Section 7.3.2). However, the group was adamant about

continuing to work closely with the NGOs as the trusted conduit to connect and network with external parties and thus extend opportunities on their behalf by carrying the voice of the Lutengele people. NGOs as civil society organisations still prevail in the South African context as organisations working towards achieving social, economic and environmental justice by contributing to the fundamental and systemic societal change, which involves confronting powerful and dominant political and economic societal forces (Mukute & Taylor, 2013). The next sections describe the turning point and deviation in the expansive learning process which led to the generation of a germ cell abstraction reported on Chapter Eight.

7.3.2 Turning the focus inwards: Strengthening the group's collective capability and transformative agency

Earlier sections pointed out that there was a general resistance from the women's group to expand the geographical and stakeholder reach beyond their current spatial and social domain. At this point, the constitution of a group as a village-based fora for sustainable agricultural development in the Lutengele micro-catchment became the scope of the activity for engagement. This was an important deviation in my research 'script' which in turn, made me look into the formative intervention with a different lens and expectations. Deviations or disturbances in the planned course of events are symptoms of inner contradictions of the activity in question (Engeström & Sannino, 2011) and manifestations of subjects' ownership of the learning process. The change of course became apparent during Change Lab #CL4 and #CL5 leaving the potential formation of a CMF as a longer-term goal (see Section 7.3.2 below). In Change Lab #CL4, it also became clear to me that the strength and transformative 'power' lay strongly within the group and that as a formative interventionist researcher, the focus was to mediate the group's deliberations to strengthen their collective capability and agency towards the attainment of their aspirations and long-term vision. Change Lab Session 5 (modelling and examining solutions) commenced as follows:

Researcher: What we picked up is people are already saying, "we can learn, we can form a group to sell to new markets". Some people were saying, "if we have a problem with labour, maybe we can help each other". Other people were saying, "maybe in terms of getting new knowledge, we can also teach each other". So, this group already has functions to do and it will be a point for discussion today: "How this group can be strengthened and be a well-working group to then achieve and tackle some of these constraints? ... So, we're gonna stop the discussion about the group here and throughout the day we're going to think about, when we go through these solutions, I'm going to put this blank sheet on the wall and say, "Can some of these be done within the group?". And then by the end of this session today, we should be able to say, "Well, this

group should be doing this and that". And then we'll come back to it and say how will that be done?

Research assistant: Do we make sense? Can we continue?

Group: Yes.

Research assistant: What is a group in isiXhosa?

Group: Iqumrhu.

Research assistant: Please spell it for me? Does it have an H?

Group: No. (Change Lab #CL5)

As a result, the new organisational structure, in terms of the strengthening of the already informal group of women, became the focus for further deliberations through the expansive learning process. The voluntary participation and willingness by the subjects of activity to work closely together and take ownership of their process was captured later on in the Change Lab #CL5 as is evident below:

Woman: We want to form this group. We are serious about it. Let's go present ourselves there [to the government departments]. (Change Lab #CL5)

The constitution of an 'Iqumrhu' undertook various forms through a process of modeling and examining by shifting to a new way of thinking about how people saw themselves, their organisation and functions as well as the appreciation about the benefits that could be yielded from the power found in the 'collectiveness'. The idea of an 'Iqumrhu' to support each other and expand their activity and ultimately their scope became the 'germ cell' for concrete transformation via ascending from the abstract to the concrete (see Section 4.5). This process is further examined in Chapter Eight Section 8.2.1.4

It is worth noting that the formation of a group is a capability in itself (see Section 3.5.3). This process constitutes the Foundational Pathway or Institutional Capability pathway described in detail in Section 7.4.9 below and further expanded in Chapter Eight. In this process double stimulation was used firstly to trigger conflict of motives and agency through the introduction of the hypothesised contradictions as described in the text above, and secondly, was supported further with mediating tools such as the 'How to form a CMF' booklet. This resulted in the formation of a constitution (in Section 8.2.1.3) further along in the expansive learning process with roles and responsibilities (see Section 7.4.8 below).

Groups, as referred in Chapter Three, are empowering spaces for women. They constitute social capital and a conversion factor for turning resources into functionings. The coming together as a group provides a platform for voice, decision-making and action. In other words, a structure for choosing and acting in a collective and in deliberative democratic process as considered in the Capability Approach literature (see Section 2.6.5). Additionally, when members of the group came together, they opened up opportunities for value formation and ongoing reflexivity on sustainability principles, as pointed out in Section 7.2 above.

7.3.3 Modelling and examining the consolidation of a semi-formal institution or group for the enhancement of collective capability and transformative agency

The modelling and examining phases of the epistemological learning actions pertaining to the consolidation of a group or '*iqumrhu*' (or germ cell) as an institution to drive change from within, did not exclusively take place in the Change Lab #CL5 but also in the various workshops that followed. Through this process, the group made decisions relating to the focus and purpose of the institution, membership and registration requirements, leadership and structure, as well as some operational aspects. The value of being part of a group was also progressively reframed through the social learning process (also Section 8.2.1.4). The following sections sketch the discursive manifestations emerging from the initial modeling and examination stages of the *iqumrhu* over the course of the Change Labs.

7.3.1.1 Focus of the group as the shared object for collective engagement.

The object of activity was reaffirmed as the focus of the group by stating: "It's farming". In other words, to work on their food production activity and outputs as encompassed in their aspirations described in Chapter Six. Their collective engagement was considered as one to overcome the contradictions mapped in Chapter Six and further analysed in the sections that follow, but particularly the 'water problem':

Woman1: Most important problem to address is water...

Woman2: Water deprivation.

Man: ... you can't farm without water. (Change Lab #CL4)

Man: I think that as a group, we are obviously working towards improving our catchment area. (Focus group discussion #FD1)

7.3.1.2 Membership, Criteria and Registration

The modelling of the establishment of a group with support from NGOs continued into Change Lab Eight, and the weighing up of associated benefits and 'dis-benefits' of involving the local leadership reached final resolution in a decision to continue as they were. The process unfolded as:

Man: We would like the councillors to be part of the work of getting water to our catchment area. We have been sharing our concerns with them for a while now and they have access to information and networks that would help us. Laura's involvement could maybe speed up the process and have our concerns taken seriously.

Group leader: I just want to go back a bit, Mr Sadina. We were at the school in Qhoboshendlini. We were talking about how our project is under NGOs and when someone suggested getting councillors involved, we shot down that idea. We said that we don't want politicians involved with our work because they make empty promises ... I had spoken about this. We don't want to work with the councillors; we prefer working with the NGOs. We are able to ask for things ourselves with the help of NGOs.

Research assistant: What about ward committees?

Group leader: I was part of the ward committee even back then, you understand me? When Thabo Mbeki was president. We were given ten tanks. We got them installed in people's homes and they never were filled. Another thing, in eNgxongweni people took tanks for themselves, even though they were not allocated to get them. So, we need to be open about these things. Don't tell me about councillors and ward committees ... They gave us ten tanks and never filled those tanks once. People take those tanks for themselves now.

Man: Mrs Ndabeni is reminding me of something. Look, even outside you'll see a tank that has been blown over by the wind. It has never been used. I think only six tanks were filled once. I remember that even when the tanks came, there were no government committees allocating them or overseeing the process. It was Laura and Mrs Ndabeni that got four tanks installed in gardens. So, I agree that we should look to NGOs rather, because councillors will be busy with their own politics. They've even promised us water that we still haven't received to this day. NGOs will help us grow. Thank you.

Group leader: I don't want councillors involved in our development mission, because they take it for their own interests. They always use us for votes and then don't honour their promise. For example, the one councillor came to us promising houses. They built one house and gave slabs to the rest of us saying they will build the rest. After we voted for him, he went silent and forgot about us. Laura comes back regularly ... We want to remain with NGOs, don't tell us about politicians. (Change Lab #CL5)

Opinions regarding the geographical scope of the women's farmer group came to the fore along the learning cycle. Although the group recognised that they should aim to work with other neighbouring villages, the final decision rested on the fact that the group should become 'masters' of their work namely food production, before expanding their reach. Examination of the

group's membership is captured in the following excerpts from Follow-up session #FS1 and resolution was reached in Change Lab #CL8:

Group leader: I think that everyone in Port St Johns should benefit from our work, not just the people of Tyityana and Qhoboshendlini ... Ladies, do you think that we should keep this in our group, or we should let others join?

Woman: ... us here in Tyityana and Qhoboshendlini. Then we go and spread it to the other villages once we have mastered it. So, I'm suggesting that we are trained first and we do the work first on the water catchment

Group leader: I think it's better we work as a small group. (Follow-up session #FS1)

Woman1: We had said that at first we want it to be within Tyityana and Qhoboshendlini. Once we have our farming techniques and know everything, we can then spread and teach others. For now though, we want to first do it for ourselves.

Research assistant: Okay, anyone else want to add to what Mrs Sadina has said?

Woman2: I agree with her. We need to first do the work ourselves, see how it goes. After that we can spread it to the rest of the area. (Change Lab #CL8)

Additional examinations took place in subsequent workshops such as exploring the requirements or criteria for people to join the group as well as the registration process. Criteria to join the group narrowed down to 'be a serious farmer' (Change Lab #CL7) with evidence in the form of a garden (Change Lab #CL8). However, the participants also agreed that people who were willing to learn and support them as a group should also be considered (Change Lab #CL8) – see Section 8.2.1.1.

Group leader: We can't have someone here taking in all this information when they don't have a garden. You must be visible when you're in a group. Am I lying?

Group: No.

Group leader: In here, we are old ladies. But you can go to our gardens and see that they're healthy. That's why I'm saying, it would be difficult to welcome someone who doesn't have their own garden. Am I lying?

Research assistant: So what kind of rules or criteria are you going to put in place to say you want this and that kind of a person in the group?

Group leader: Criteria helps in a lot of things. It ensures that people don't violate the rules and they know what they can and can't do ... We should have our own criteria that suits Tyityana and Qhoboshendlini. Not separate, but as one. If we have that, then we will be able to call people out when they do something wrong. (Change Lab #CL8).

Membership was also a topic for deliberation as it could have repercussions on distribution of resources once available. The group wanted recognition of those members who had been part of the informal group since early 2000s and to be given priority as first recipients of the benefits. The discussion led to the idea of keeping a register to know the historicity or evolution of the group and its members (Change Lab #CL8) – see Chapter Eight on further examinations, power dynamics and implementation of solutions with the introduction of new material stimuli.

7.3.1.3 Group leadership and committees

Based on the strategic actions and tasks, as solutions generated through the early stages of the expansive learning process presented in Section 7.4, the participants agreed on establishing committees to drive the strategies into implementation (Change Lab #CL5). The notion of committees, roles and responsibilities took stage in further discussions and analyses along the learning cycle until it reached a point when the working committees were active and actioning their allocated responsibilities. Chapter Eight describes how committees moved the co-developed strategic solutions forward – see also Section 8.2.1.2.

7.3.1.4 Operational organisation

Operational aspects of the farmers group as an institution were also discussed. It seemed that there was no routine or structure as to when, where, how often, purpose, etc. members of the group used to come together. Some suggestions were brought forward about the role of the group leaders and chairperson to mobilise and convene events or meeting for the members of the group to come together, for instance, before planting season and as a way of learning and supporting each other (Change Lab #CL8). The purpose of the group was therefore defined as a support system, a place to draw and seek for help, a place to access information and expand one's knowledge (Change Lab #CL7) – see also Section 8.2.1.3

Section 8.3.1 in Chapter Eight expands on the transformative learning revolving around the semi-formal formation and strengthening of the group as an entity to catalyse change in activity. The consolidation of the women farmers group is consequently analysed as a Capability Learning Pathway with foundational or institutional meaning for the reconceptualisation of the object of activity and the movement from the abstract to the concrete; in other words, a conversion factor for the turning of resources into functionings or capability expansion. The consolidation of the group, in the form of a group's constitution, was catalysed with the introduction of material stimuli or incentives in the form of trees and water tanks. These stimuli carried deep meaning in this

context and as such incited an amplifying effect on transformative agency in the implementation process filled with complex power dynamics among the group members and beyond.

In sum, the unfolding of the expansive learning process happened at three levels: at the value clarification level in term of human and non-human relationships and social relationality; the institutional level as described above; and the practices level outlined in the sections that follow.

7.4 Co-development of a strategic action plan for the expansion of food production capabilities within the local catchment sustainability

This section mainly presents the learning interactions among members of the women's group and researchers centred on the co-development of solutions for the expansion of the group's agricultural capability encompassed in the object of activity and their aspirations. The section describes two critical epistemological steps, 'modelling' and 'examination' of co-designed solutions derived from the analysis of the surfaced contradictions presented in Chapter Six. The section therefore presents the data generated from the analysis of the Change Laboratory workshops Four and Five (CL4 and CL5) held 20-22 June 2017 at a homestead in Qoboshendlini village. Participants were firstly presented with the problem of activity as *First Stimuli* (low food productivity) and secondly, with *Second Stimuli* used to stimulate involvement, analysis and collaborative design efforts among the participants (moving from the past, the present and the future). The second stimuli comprised of the hypothesised contradictions based on their initial historical and ethnography groundwork in Phase One of the study. The contradictions were presented as mirror data organised as the capabilities identified for the expansion of the farming domain and aspirations expressed by the research participants in relation to their sustainable agricultural activity (see Section 6.7). The contradictions were presented on flipcharts under each capability heading (see Picture 7.2 below). The identified capabilities were as follows:

- a. being water secure;
- b. being able to use land effectively and being land secure;
- c. being knowledgeable and skilful for the pursuing of the envisioned agricultural practices;
- d. having adequate agricultural inputs and equipment;
- e. having access to labour to expand production;
- f. being able to invest in agricultural tools, equipment and other resources; and
- g. being able to access the market value chain markets more competitively.

After a thorough explanation of each capability and associated contradictions, the first step in the *Change Lab Four* learning process involved the validation of the identified capabilities by further analysing the associated contradictions based on a weighing and ranking exercise, which in turn became the source of further learning and the co-development of strategic actions and solutions. The weighing of capabilities with a rating scale ranging from 1 to 4 (with 1 a capability with low importance and 4 with very high importance) was used to solicit reflection and analysis of each capability thus underpinning contradictions in relation to the group's aspiration-practice relationship. The weighing or ranking assisted with surfacing conflict of motives with the further analysis of contradictions and the second layer of analysis leading to double binds and tensions between participants, etc. as foci for charting the ZPD in coming up with alternative directions of development of activity and examining these possible future directions to transform the activity.



Picture 7.2: Presentation of Second Stimuli as capabilities with contradictions

The researcher encouraged participants to think critically in the process for modelling and examining potential solutions:

Researcher: What we're going to do is start with the number fours and see how you've come up with way forward to address some of these constraints and these challenges. What is the way forward? And then we're going to be elaborating on the way forward and look at feasibility, difficulty and what difference it will make, okay?

Researcher: So, what I want to say here is when we think of a solution, we can't just think we need a water tank. We need to start thinking well, where is the water tank going to come from? Who is going to mobilise the water tank? How are we going to do it, when are we going to do it by? Who is going to lead this task, you know? That's what we need to get at in the discussion today and tomorrow. We need to start thinking about mobilising. Is it feasible? Is it not feasible?

The collectively produced vision for the Lutengele catchment and associated sustainability principles was also introduced as auxiliary stimuli to assist participants in the learning process with the reconceptualising their object of activity by making the relational aspect between their catchment vision and agricultural aspiration more explicit (see Section 7.2.2.2). In other words, sustainability was embedded in the proposed practices and solutions and safety, happiness and well-being (the 'good life') long-term outcome of learning process

7.4.1 Water security (quality and quantity): *Contradiction #2 and #3*

Being water secure is an environmental conversion factor and critical natural resource for farmers, especially women in this context, in terms of the attainment of their food production aspirations and capability, particularly in the farming domain of the 'isitiya' and 'igadhi' where most hand irrigated crops are cultivated. Water security extends to the ability of participants to meet the water needs for domestic use, including their livestock and domestic animals. When water is available in the household or nearby, the water drudgery levels decrease and so too the human body risks associated with fetching water from faraway and insecure sources. Water in this context was also considered as an expensive commodity and productive resource. Water in summary was reflected by the participants as one main constraints for their aspirations to be realised. The second layer of analysis pertaining the water security related contradictions generated a *double bind* to work on (see Section 7.3.1 above) mainly related to lack of water infrastructure and water services surfacing the ethical-political dimension of this work from a water democracy, poverty and development point of view. By triggering a conflict of motives, the participants continued analysing the contradictions underpinning lack of water services and infrastructure – *Contradiction #2* (Section 6.7.3) and *Contradiction #3* (Section 6.7.4). Several solutions were modelled and examined leading to a series of solutions to take forward into the experimentation phase. These were the installation of rainwater tanks at household level; the appointment of a driving committee to mobilise water infrastructure such as water tanks; the promotion of Water Harvesting and Conservation (WH&C) methods; and; in the long term, the formation of a catchment forum.

7.4.1.1 *Examining potential infrastructural solutions such as protection of springs, installation of tanks and boreholes and water pumps*

After proposing and examining different possibilities to develop the work activity relating to water insecurity faced by the participants, the prioritised solution was the installation of rainwater storage systems in the households where most agricultural activity was taking place. The arrival

at these solutions undertook various cognitive stages with clear manifestations of agentive talk and conflictual opinions on the part of the research participants and the formative interventionist. The discussion started from the point of view that 'water is dirty' in the springs. This led to the proposition that the springs needed to be fenced off and protected from cows and goats drinking from the springs. However, different points of view arose including the springs ran dry in winter and protecting the spring would not solve the water shortage experienced in the area. Also in the summer, women have to fetch water very early in the day in the dark before it runs out putting women at risk: "You'll meet up with a vampire and it will suck your blood!" (Change Lab #CL5). The resistance to spring protection interventions continued as there was a concern about preventing livestock from drinking from the springs especially when the Umzimvubu River is murky and muddy from the siltation load flowing from the eroding upper catchment area. The formative interventionist researcher tried to summarise the discussion and proposed a spring protection system which would cater for both livestock and human needs by pumping water from all-year-round flowing springs into storage during the night with a livestock drinking area further down the spring. Again, more resistance emerged from the discussions based on the fact that the spring protection systems would need to be monitored and this would be very unlikely:

Researcher: So, one way or another, this seems to be a good option but there are problems.

Group: Yes!

Researcher: So maybe, so this is a good option, but there are problems. So how do we get through these problems? Who manages this?

Group: Nobody will monitor it.

Researcher: The other thing is who is going to do it? Who is going to install this system?

Group leader: Nobody.

Research assistant: Is there nothing the men of this village can do?

Group leader: What are you saying about the men of this village? The headman won't have the power to, you can see for yourselves. (Change Lab #CL5)

The deliberations and examination of the above intervention finally led the group to find more value in rain water storage systems installed in the households rather than at the springs or the Umzimvubu River as the harvested water would be secure from local vandalism damaging the water tanks and from pollution driven by human and livestock misuse:

Man: I don't think we should focus so much on the springs and fencing the springs, because if we do, we'll need to get someone to stand guard there. That person will need to be paid a wage or salary. That water isn't even safe to use. It's dirty. Further upstream, people are doing their laundry or there are dead donkeys. Then you use this water that comes downstream to you. Diseases like cholera are due to the fact that the water we are using isn't safe. (Change Lab #CL5)

Nevertheless, a member of the group pointed out that they needed to do something about local people not taking more responsibility about maintaining the health of the local water sources.

The evidence of commissive transformative agency is captured in the following excerpt:

Group leader: The issue is that anyone can use the river and they don't care. When there's a drought, people just drink the water and it is not clean. And you know, children are so naughty. They'll just go to the toilet in the water, even when it's rained. We need to take heed of that. (Change Lab #CL5)

The matter was parked and the group moved to examining various water storage systems based on some examples already in place locally such as small farm dams, cemented reservoirs or underground tanks and JoJo tanks (plastic tanks placed above ground which channel runoff into storage as per Figure 6.3 in Chapter Six or from household roofs). There was a general concern about the safety of the dams and reservoirs as well as water extraction from these storage systems:

Woman1: What we really want is to use the tanks to store water for the dry months.

Woman2: Maybe we need to open a dam to collect the water.

Woman3: But it might dry out.

Woman1: We also need that once the dam has been made, we'd have to ensure that it's fenced again. Because children play there or want to play there, and they'll drown.

Woman1: We have a tank that's cemented and fenced in Tyityana. It's closed with a lock.

Research assistant: So, it gets full?

Woman1: Yes, it overflows. But then there was a time where the water wasn't coming out the tap, so we had to break the lock and go in there, which is more dangerous. Sometimes it's really dry and empty.

Man: Regarding the water, we could cement it or fence it, but the water pressure is low. We need a proper pump for the water because in winter the water is at a low level. There is always a shortage. It would be better to have tanks, maybe the ones that are above the house so that they store water for the dry months. (Change Lab #CL5)

Water extraction mechanisms such as windmills and boreholes were also presented but with low uptake as a short-term and doable response. The discussion concluded for the group to make means to install rain water harvesting tanks (JoJos) in the households as these have been most useful for both food production, domestic uses as well as reducing physical strain for both young and elderly women when fetching water:

Young woman: For me, the tanks have been the most useful, because I am a farmer. I can wash my blankets in my own home, when it's hot the cows can drink from the tank; there is always water. (Change Lab #CL5)

Woman: Farmers should be prioritised because not all the farmers have as great a garden as mine. For example, in my garden there's beautiful carrots, cabbage because I get water [from the tank]. (Change Lab #CL5)

The citation below exemplifies the move from envisioning to a more committing transformative agency expression by indicating that the group should focus on “getting people tanks”:

Woman: I think we should start by getting tanks to the people who don't have tanks. (Change Lab #CL5)

The above resolution was further reflected upon and reported in Section 7.4.1.2 that follows.

7.4.1.2 Appoint an Infrastructure Committee for Rain Water Tanks to deal with the double bind encountered in relation to lack of leadership and inappropriate support

As cited in the previous section, the research participants presented the need for water infrastructure resources (water tanks) but recognised that they needed to work on the ‘double bind’ presented in Section 7.3.1. The lack of local, trustworthy and reliable leaders suggested their poor service delivery resulted in turning the gaze inwards and focusing on strengthening the group or ‘*Iqumrhu*’ to drive their agricultural agenda in the villages (Section 7.3.3). The group agreed to form a “water infrastructure committee” formed by members of the group, the NGOs representatives and the formative interventionist researcher leaving the local traditional leader out:

Young single woman: The way we're thinking is that it should be Laura and someone from the nursery. Including the Chief is not right. It should be Laura, someone from the nursery and one of us. (Change Lab #CL5)

The composition of the water infrastructure committee is captured in Section 7.4.8 below.

7.4.1.3 Employment of Water Harvesting and Conservation (WH&C) methods

Furthermore, despite the rainwater harvesting and conservation practices already adopted by some members of the group in their 'isitiya' and 'igadhi' the members of the group, in the Change Lab session (#CL5), indicated that the participants needed to extend their competencies around these practices; in other words, they needed to become more knowledgeable and skilful in maximising and conserving rainwater. This links to learning with regard to the expansion of "being knowledgeable and skilful for the pursuit of the envisioned agricultural practices", as per *capability* presented in Section 7.4.3 below. The session opened up a space for participants to share their already known practices manifested in the agentic speech as they explicated and envision their activity based on current practices such as:

Researcher: How do you maximise water run-off?

Woman1: We gather the water so that we can use them in our households.

Group leader: It is possible to make a ditch or trench in the garden, then when the rain comes, the water runs into it and waters your garden.

Group: A lot of us do that [use this method]

Group: Yes. [it is an option for people]

Woman2: Yes, it works because when floods happen and we dig furrows in the garden, we can even fill 2 litre bottles up with that water now.

Woman3: Yes, with my furrow it also trickles down into my garden and waters my plants.

Woman4: What I've done is I take out pots and 2 litre bottles when it's raining. Then once it clears up, I use that to water my garden. Since there isn't always money to buy the spray cans, you can always take a 2-litre bottle, poke holes in the lid and use that to water your plants. It waters them almost like rain. This is something I've been doing in my garden and I advise the next person. You can take a 2-litre bottle and punch holes in the sides. Leave it within the plants and then as the water pours out, it waters the plants.

Woman5: I have a little pond that I made in the road. I live at the bottom of the hill, so what I've done is dug a trench at the bottom to collect the water that runs down. After 2 weeks, there's still a lot of water left. My challenge is the cattle and goats that drink from it. (Change Lab #CL5)

7.4.1.4 Establishment of a Catchment Management Forum (long term solution)

Working towards the formation of a Catchment Management Forum (CMF) or river forum for the Lutengele area was also designed in the interventionist Change Labs (Section 7.3.2) as a platform to exercise voice, develop multiple partnerships towards the mobilisation of

infrastructure and resources necessary for the improvement of the farming activity and quality of life as a whole. However, as indicated in Section 7.3.3 above, the focus was on strengthening and empowering the 'Iqumrhu' with the trusted partners. The group requested more information on how to form a CMF and acknowledged that this could be a long-term goal for the group (see Section 8.3.1.4 in Chapter Eight).

7.4.2 Land use: *Contradiction #4*

Stemming from *Contradiction #4*, the group indicated that looking after the land was of high priority in the ranking exercise in terms of avoiding land degradation and erosion, building the soil structure and fertility with natural fertiliser methods and maximising the production in the readily available gardens and arable plots. "Being able to use land effectively and being land secure" was recognised as a valuable capability by the group. Land security in terms of access and quality, as pointed out in Chapter Six, is considered an ecosystem service or natural capital that has the converting ability to support agricultural development. In Capabilities terms, land in this context is an environmental conversion factor for food production and a power tool for women empowerment. Three strands or solutions were modelled and examined as presented in the Sections 7.4.2.1 to 7.4.2.3 that follow.

7.4.2.1 Land use

The Change Lab #CL5 provided an opportunity for the participants to share some land maximisation practices based on intercropping and companion planting so that the available gardening plots would yield more and increased variety of produce than the more conventional ones based on single crop plots with plants widely spaced out. Proposed methods to be employed by the group for the enhancement of their produce and yield were put forward and some methods examined:

Group leader: When I plant, I don't have space to move.

Woman1: No, let me explain. For example, I'll plant cabbage in this spot and then leave a gap and plant spinach and again with beetroot.

Woman2: I am thinking that when we make those beds in the ground to plant our crops, we should make a small furrow in between them so that they are not on top of each other, but they are much closer together.

Woman3: You have to plant tomato by itself because it suffocates the other plants.
(Change Lab #CL5)

The resolution boiled down to focus on improving the group member's practices by learning and acquiring skills in this regard:

Researcher: What I'm picking up is that some people do know about this and some are still uncertain. They're not too sure. So maybe we can bring this back to share knowledge, yes?

Woman: Yes, add that to our list please! (Change Lab #CL5)

The last point of discussion revolved around the cultivation of the field or 'amasimi' being constrained by the inappropriate fencing as well as other challenges as outlined in Section 6.3.3.3 in Chapter Six. This aspect links to lack of agricultural equipment reported in Section 7.4.4 below. No further reflections took place regarding the use of the fields.

Woman1: I have fields.

Woman2: I have fields, they need taking care of/clearing.

Woman3: I plant maize every year in my garden and the fields.

Young single woman: I don't plant in my field because I still need to get a fence first. (Change Lab #CL5)

7.4.2.2 Soil fertility

"Growing the soil is very important", a participant indicated during Change Lab #CL4. The group recognised that the use of manure to keep the soil "fresh" was the way to go about improving and maintain adequate soil fertility for plants to grow healthy.

7.4.2.3 Soil conservation (erosion control methods)

The adoption of soil conservation based on erosion control methods was a topic that generated horizontal learning opportunities during the interventionist workshop Change Lab #CL5 by participants sharing their practical experiences and approaches with one another. Soil conservation has replications on the fertility and structure of the soil and vice versa. Agentic actions in this regard is cited as "We said that we must change how we farm to make the soil fertile" (Change Lab #CL5). Participants explicated new possibilities by indicating, for instance, that "another way we can stop the soil from becoming tough is by using [manure] fertiliser. It helps" (Change Lab #CL5). Interestingly people also presented local ways of avoiding soil erosion such as:

Man: Another way to stop soil erosion is to get corn, chop it and make a line with them, so that when the rains come, that line stops them. We could also create furrows so that the rainwater is stopped by them. (Change Lab #CL5)

As well as:

Group leader: Something else I do is I use rocks and stones. I also use bones. When we start ploughing, we open the lines and make furrows.

Woman: Is that not contours?

Group leader: No, it's not.

Woman: I think it is contours that does the same thing for the soil. (Change Lab #CL5)

The researcher also introduced the idea of planting vetiver grass to create vegetation barriers along the contours on steep terrains as an erosion control method. One of the participants indicated that she already had some in her garden and the group approved the suggestion as a way forward to incorporate in their gardens (*igadhi*). Other plants that could have the same effect were put forward such as sugarcane: “Sugarcane is really good. You can plant it and it does the trick” (Change Lab #CL5); and wild garlic (*itswele lomlambo*) as the “roots sink and so they're good for keeping the soil firm and held together” (Change Lab #CL5). As for the *amasimi* or fields and *igadhi*, one respondent noted:

Woman: My garden is on a slope, but because I don't burn my pastures, it helps me a lot. When I harvest my produce, I dig furrows so that when the floods come, it makes my soil fertile.

Research assistant: There in the fields?

Woman: Yes. But also, in the garden. I make furrows to make sure that the water goes into the garden and waters my plants. (Change Lab #CL5)

However there was hesitation about incorporating ‘contour lines’ or swales in the *igadhi* as they were perceived to be too small to accommodate this method but they would be well suited for the fields:

Woman: I'm reluctant to use contour lines because my garden is not big. It would take up the space in my garden.

Research assistant: But do you use furrows?

Woman: Yes, I dig furrows in the fields, but not in the garden where I plant maize. (Change Lab #CL5)

The group discussion concluded with taking soil erosion control methods as another topic to learn more about: *“I don’t really understand how to do it [the contour method]”* (Change Lab #CL5) - Section 7.4.3.

7.4.3 Knowledge and Skills: *Contradiction #5 and #6*

Being knowledgeable and skilful for the pursuit of the envisioned agricultural practices is a basic capability that in turn leads to the expansion of other capabilities (see Section 2.6). Human capacity in the form of knowledge and skills is considered in capability terms, as a personal conversion factor to, for instance, employ available water resources (e.g. rain) into productive use (e.g. food production). Human capacity, or being knowledgeable, contributes to people’s decision making processes in an informed manner to best deal with, for instance, technical aspects of crop production, access to markets, adoption of sustainability practices, navigating and adapting to risks and vulnerabilities, to name a few. Section 6.6 suggested that human capital adds fuel to women’s navigational capacity and bargaining power to manoeuvre through gender-based injustice and power dynamics whether in the institution of the family or society at large. It was therefore not unforeseen, based on the women’s group, that proposed solutions centred around the adoption of WH&C methods (Sections 7.4.1.3; 7.4.1.4; and 7.4.2.3 above) as well as conceptual understanding of seed harvesting and knowledge pertaining to marketing and value chains (Section 7.4.4.2; and 7.4.7 below) that the aforementioned capability was ranked of high importance for the transformation and development of activity: *“[knowledge and skills is] important because it teaches us self-sufficiency instead of buying food. We can grow and eat our own produce ... and to be able to grow the new types of vegetables we plant these days”*. Furthermore, the formative interventionist Change Labs workshops themselves (#CL4, #CL5 as well as #CL7 reported in Chapter Eight) provided an optimal institutional social learning space for people to share their experiences pertaining to the ‘knowledges’ identified by the group as critical. In other words, the Change Labs can be considered as capability input and an institutional conversion factor for the expansion of collective capability and agency, agricultural and human development (see Section 8.3.2). Additionally, beyond the participants’ conceptual and cognitive development cited above, the Change Labs are geared to provoke participants, using the double stimulation method, to collectively work on their object of activity from abstract conceptions to concrete material manifestations of the activity being transformed and developed through a process that entails the modelling and weighing of potential and doable solutions. As such, during Change Lab #CL4 and #CL5, the farmers group proposed six strategic solutions to

the improvement of their collective human capital relating to sustainable agricultural practices. These are briefly outlined in *Sections 7.4.3.1 to 7.4.3.6* that follow.

7.4.3.1 Training workshops.

The group appreciated the value of the non-formal workshops facilitated over the years from local NGOs (Section 6.3.3) and would request their support into the future (Change Lab #CL5).

7.4.3.2 Experimentation in demonstration site

There was also agreement that people enjoyed learning by doing with others and that having a demonstration site to experiment and support their learning process around specific agricultural content knowledge would be a good strategic solution. There were however some deliberations about a suitable site until a member of the group volunteered to host the learning site. Her household was strategically located between the two villages with easy access from the road interlinking both villages:

Researcher: Do we need to look for a site?

Woman: What about the schools?

Group leader: [To the group] How do you guys want to split it up? I had said that we should have a place that's in the centre. We could use Bhuti's garden that is here close by.

Woman: I've got a yard at my house. We can use it and teach each other. I have an area, but it's on a hill. (Change Lab #CL5)

7.4.3.3 Knowledge resources (booklets and pamphlets)

Another proposition to support people's learning was to have access to knowledge resources or booklets. Initially there were differences of opinion as some members did not find information booklets useful and they would rather focus on practical experiential learning. The final resolutions settled on resources translated into isiXhosa as they serve as good reference resources when needed. The idea was also seconded by illiterate members who suggested that their grandchildren would read them out to them. The discussion evolved from resistance of information resources to approval as follows:

Woman: [Booklets are] not useful for all of us.

Group: We want books, but they must be in Xhosa because English is confusing. We can use our grandchildren to read to us.

Man: I understand that we need books, but workshops are more important. We were taught how to farm and plant our seeds correctly from the workshops, not books. While you could read pamphlets, it's very important that you do the activity yourself.

Woman: The reason why some of us want books or pamphlets is that there are some plants that don't survive in winter, and others that don't survive in summer. That's why we want to have a reference to look at to say you can't plant this seed during this season. (Change Lab #CL5)

7.4.3.4 Peer to peer knowledge sharing.

Another suggestion was to support each other on a one-to-one basis. This view is captured in the citation below:

Woman: I would like to speak from my perspective. As farmers, we can go past other gardens and tell our fellow farmers that they are planting their seeds the wrong way. I've been doing that for a while. If I see a fellow farmer doing something wrong, I help them because I'm not jealous of them. They also need to sell their produce. You have to get along. For example, if you see that a person has no garden, give him some seeds and make a space for a garden so that you can all grow together. That's what myself and some others do. If you see that a farmer hasn't planted something correctly, you must help him plant it correctly. If it says plant it 4 metres or 3 metres, then show them. (Change Lab #CL5).

7.4.3.5 Internal group workshops

Additionally, the knowledge workshop facilitated by external partners such as the local NGOs, the participants recognised that the group itself could be more structured in how they support each other and aim to organise their own internal workshops:

Group leader: We have to gather in groups like this and have a day when we go to Tyityane and another day we come here in Qhoboshendlini and share the knowledge. We should have days as farmers where we go to each village and share the knowledge. The only days we can't go are Sundays since these are the days of no work, according to the Bible. Maybe we should go on Thursdays. (Change Lab #CL5)

7.4.3.6 Visits to other farmers

Lastly, there was a general appreciation for local successful farmers around the Port St Johns area. The notion of organising learning visits to these farms or gardens was also put forward as a suitable solution and in this way, people could avoid travelling far away from the villages:

Group leader: Thoko, I've seen something similar to rainwater harvesting. I once went to a place and saw this one lady's garden. It was beautiful. She had made small dams in the ground. Not too deep. When I looked, the dams were watering the plants. I wanted to speak to the Tata of the house, but we ran out of time.

Research assistant: So, this place was relatively close by? Here within Port St Johns?

Group leader: Yes, here in Port St Johns. (Change Lab #CL5)

This implementation of some of the propositions that emerged during Change Lab #CL5 were actioned later in the expansive learning process with the integration of practical WH&C workshops help by a local NGO at the learning demonstration site. These workshop or mini-cycles were embedded in the interventionist workshops #CL6 and #CL7 as outlined in Table 7.1 above and described in Chapter Eight.

7.4.4 Inputs and Equipment: *Contradiction #8 and #9*

After analysing contradiction #8 and #9, having access to agricultural inputs and resources such as seed, seedlings and fencing, to name a few, was verified a key capability necessary for people's success and expansion of crop production (see Section 6.7.9 and 6.7.10). For the group, the aim was to eventually become self-sustaining by developing income generating food gardens so they could reinvest some of their produce sales back into their gardens and fields (See Section 7.4.6). However, the participants also elaborated and examined the following propositions as outlined in the sections below (Sections 7.4.4.1; and 7.4.4.2).

7.4.4.1 Donations

The women farmers group should take the responsibility of mobilising donations from local business such as hardware stores.

Group leader: We can go to the Manager saying we are farmers from Tyityana and Qhoboshendlini. Not as separate villages, but as one (#CL5).

Group leader: I think it would be easier if we did it like this; everyone knows that I'm not afraid of speaking to white people ... So, this is what we'll do, I'll go to the manager at Boxer myself. He likes me a lot. I'll ask him humbly to consider our request for tools to work with as customers that support Boxer. He'll ask me, Mrs Ndabeni, what do you want in particular and I'll tell him anything you can give us. I don't want to ask him for specific tools. After that, I'm going to Mandiya to call the ones from Spar and sit with them at the offices. They have a hardware store. Entabeni Hardware is owned by them. I'm doing it like this so that we don't fuss too much over this.

Researcher: What do people think?

Woman: It's good, because we don't have any tools at all. (Change Lab #CL5)

7.4.4.2 Seed banks and seed exchange

In order to break dependency from purchasing seeds and seedlings, including handouts from local government officials, the research participants acknowledged that they should focus on growing their own seedlings by harvesting the seeds from their vegetables and crops: “[We should] have our own seedlings rather than depending on outside help and using our money to buy them. Purchased seedlings of not good quality. But we can use a seed and create our own seedlings. Very important for me!” (Change Lab #CL4). Although seed harvesting of maize crops, beans and pumpkin was a well embedded local and cultural practice, it was acknowledged that harvesting seed from more recently introduced crops (e.g. cabbage, spinach, carrots, etc.) was not commonly applied and therefore not widely known:

Woman1: We won't be able to, because some people know how to do it [growing seedlings] and others can. I can. The ones who can't have to rely on buying the seedlings

Woman2: Yes, it would because if my neighbour can't create their own seedlings, I can go over to them and show them how to.

Woman3: I can collect carrot seeds. (Change Lab #CL5)

The discussion among the group members turned towards learning to harvest vegetable seeds and grow good quality seedlings. Seed exchanges among themselves were put forward for all vegetables and crops with the exception of *mielie* (maize) seed as these are of high cultural and generational value (see Section 6.3.3.4):

Researcher: So then maybe starting to harvest seeds would be a good one. And develop that seed bank. Yeah? Harvest seed. Knowledge on that. Is there any problem with the mielie (maize), beans, pumpkin seeds? Is there always seed for those?

Group: No, we don't.

Woman1: I always have pumpkin, mielie (maize) and bean seeds. These other ones, I buy them.

Woman2: I can give them cabbage, spinach and all of that for free, but not when it comes to maize.

Woman3: I would exchange with someone if they had cabbage and onion.

Woman1: It would work once we start with the seeds. (Change Lab #CL5)

7.4.5 Labour: Contradiction #7

The research participants at first projected a conflict of motives and consequently reported mixed feelings relating to their accessibility to labour (and machinery or tractors) for the perusal of

agricultural activity as presented in *Contradiction #C7* (Section 6.7.8). The second layer of analysis of this contraction confirmed that there was scarcity of young healthy bodies to assist during planting times, including the *makotis* who were usually quite busy with house chores and so this capability was initially ranked at the highest level as a shortage of labour that had a negative affect on people's agricultural output. However, other respondents disagreed with the rating allocation indicating that it should be of medium importance. The contestation was centred on the aspirational goals and the fact that additional labour inputs, either machinery (tractors) or financial support to hire labour, would be a prerequisite for cultivating the *amasimi*.

Man: On that point on labour, I am saying that I am a farmer. As a farmer, it is my duty to work the land, to fetch water from the Umzimvubu River and to harvest the produce. All we are asking for is help with this. But it is still my responsibility to farm my bananas in my garden. I'm not going to stop working and farming just because I have no energy, but I am asking for assistance with some of the duties. (Change Lab #CL4)

On the other hand, in the *isitiya* and *igadhi*, labour was not a constraint, even for elderly people with some health related limitations. The assertions were as follows:

Group leader: We can farm.

Young single woman: It's not a problem for me. I have three gardens and they're beautiful. I do all this work while my children are at school.

Elderly woman: [old lady]: As sick as I am, my garden is not too much of a burden on me.

Woman: I never said I have a problem. I farm, I fetch water even with one working hand. I have maize, I have pumpkin and everything in my garden. I get help with the children. (Change Lab #CL5)

However, there was recognition that in some circumstances people needed to seek assistance to be able to farm successfully at any farming scale or domain:

Man: Old people can farm in their gardens. But what we're talking about is whether we want help with that or not. When you are farming in your own garden, you're going to produce your own food and sell it or ask for help with some of the activities once you feel you're getting tired. They help you and things get better for you. That's what we want, is improvement. (Change Lab #CL5)

7.4.5.1 Help each other when there is a need

From the discussions it was evident that despite the semi-informal formation of the group there was some shared identity about being a member of the group. When the researcher asked the question "How do people help each other?" the following statements arose:

Woman: Being part of a group means we have each other to support. There'll always be someone to help you out when you have problems. If someone in the group doesn't

have seedlings, they can get from the group and everyone will have beautiful gardens. No one will sleep without food.

Man: Being in a group means that we are one; we are united. We work together to solve each other's challenges. (Change Lab #CL5)

Based on the statements above it seemed clear to the group that a doable approach regarding labour shortage was to assist and work with each other. This view was affirmed with strong collective and agentic commitment expressed as follows:

Researcher: So, I'm gonna give you an example. Let's say you're working as a group. One day someone is very sick for a week, two weeks and something needs to be planted really quickly because the seedling is ready. So, will you help each other in that case, or will you expect the family to help?

Group: We'll plant for them.

Research assistant: Or would you get someone from their family?

Group: No!

Group leader: We'll give them seeds and plant for them.

Group: That is someone from our group. That is our team member.

Researcher: Is that because it's what I want to hear or?

Group: No! We would help out. We're not jealous.

Woman: I mean, even uMama who spoke earlier said that she has help from her children. But if she ever asked us for help, we'd help her. For an example, you see that old lady by the door? Mam' Gertrude helps her in her garden from time to time, because she's alone in her house. (Change Lab #CL5)

As a result, the hypothesised socio-political and historically developed contradiction which generalised labour as a problem across all farming scales was fine-tuned at this stage in the expansive learning cycle with an agreed way forward for those instances when members of the group needed further assistance.

7.4.6 Capital/Finance: Contradiction #C8

The analysis of *Contradiction #C8* encapsulated the value placed by the group members on the prerequisite of being able to invest in agricultural activity in order to gain optimal returns at the level of their aspirations. As presented in Section 6.7.9, economic opportunities in the area were limited and often inappropriate for women to participate in such initiatives with the main sources of income being social grants, remittances and informal 'piece-jobs'. Most income was invested

into household needs (e.g. food, children's schooling) and relatively low investment was made into farming inputs and equipment. Additionally, despite local access to micro-financing service providers, the participants were not in favour of taking up these opportunities and bearing the loan repayment interests and risk. The weighing and ranking task assisted to chart participants ZPD in breaking away their framing associated to external dependency to one that promoted financial self-sustainability of their agricultural activity. *"Money is important ... The money comes from our pockets. We replant what we produce. If we had more land to farm on, we'd produce more and be able to make money from that ... For example, this past month I sold R400 worth of produce and I bought the inputs for R160"* (Change Lab #CL4). As a result the group decided that a solution to the financial limitations faced was to improve their activity by reinvesting gains generated from the activity itself. These gains were also critical to sustain other household needs such as electricity and other commodities.

7.4.7 Access to value chain markets: Contradiction #C10 and #C11

The discussions and reflections relating to expanding the market reach to the nearby town of Port St Johns was brought up by the group in Change Lab #CL4: *"You can sell for more outside the village – in the village the neighbour will come and set the price for your produce"*; but participants presented uncertainty on how to go about it: *"It is important to sell outside the village but the problem is how to do that – it goes back to "knowledge". We don't know the rules we have to follow to sell to bigger markets"*. They felt they were not at that level yet and after reflecting on the group's circumstance and productivity level and crop variety, it was decided that for the time being the focus was to collectively increase production and to later pay attention to accessing other markets outside the villages as a group:

Group leader: If we could join together as a group; one of us has potatoes, another has cabbage and another has beetroot. Then we get someone with a car to sell our produce in town. (Change Lab #CL5)

7.4.8 Formation of committees to spearhead implementation of solutions

By the end of *Change Lab* Session Five (#CL5), the research participants agreed on the formation of a more structured approach to drive the proposed solutions described in the sections above (Section 7.4.1 to 7.4.7). The participants consolidated their proposed strategic solutions to the expansion of the group's agricultural capability as guided by their aspirational goals, and consequently formed a committee with tasks and responsibilities to drive implementation (see

Section 7.3.1.3). Some members of the group were appointed to take responsibility for the strategic action inline with their expertise and personal characteristics (see Text Box 7.2 below):

Woman1: Mr Ginqi and Mam' Gertrude.

Woman2: Mr Ginqi, you've been chosen. Stand up and introduce yourself. (Change Lab #CL5)

Text Box 7.2: Strategic Actions and Group Committees (“*iqumrhu isigqeba*”)

- Water Infrastructure:
 - o Explore opportunities for mobilisation of water infrastructure (e.g. water tanks, ground water extraction, water pump)
 - Proposed Representatives: Laura, WFFO, Gertrud and Mr Sadina
- Learning and Knowledge Resources (e.g. seed harvesting and bank, seedling growing, pest control, rain water harvesting and conservation, intercropping and companion planning, marketing):
 - o Meet regularly to share knowledge
 - o Look for other learning opportunities (e.g. field visits to local gardens)
 - o Access learning resources (isiXhosa)
 - o Establish and manage learning demonstration site
 - Proposed representatives: Nolundi, MamuSamson
- Donations/fund raising:
 - o Look for local donations (e.g. hardware shops, agriculture department, etc. for trees, seedling, tools and fencing)
 - Representatives: Gertrud and Mr Sadina
- Seed bank:
 - o Establish and develop a seed bank for vegetables (cabbage, spinach, lettuce, tomato, onion, etc.)
 - Proposed representatives: MamuBahlule and MamuMPhakathi
- Help/Assistance:
 - o Help each other when there is a need
 - Proposed representatives: Mrs Sadina and Miss Mvakwendly
- Marketing and Sales:
 - Not a priority yet

For the water infrastructure sub-committee, the interventionist researcher and a representative from local NGOs were put forward as members of this sub-committee to deal with the double bind encountered in relation to lack of service delivery and inappropriate support from local leadership (see Section 7.4.1.2). The formation of the committee and action plan was a useful tool for responsibility formation and breaking away from the ethical-political nature of the object of activity:

Group leader: Another thing, as you're all getting nominated, we must all take this seriously. Please don't come with excuses that you're busy, all of us are busy. A person must take this work seriously and make themselves available. (Change Lab #CL5)

However, the appointment of sub-committee members undertook further examination and by the end of this session the group agreed that the nomination was not an inclusive selection and it could lead to tensions further down the implementation and learning phase:

Group leader: I just want to mention that there are some people who are not here at the moment but are very smart and able for some of these roles. They are at church. I don't think we should nominate people when there are some of us missing. People will feel left out and may speak badly about the whole process ... Basically, we have to have full consensus before we do anything ... Even in church, they don't do anything without a full house. We aren't all here yet. (Change Lab #CL5)

The way forward was to further assess their proposition with all group members in a separate session, allocate responsibilities and commit to move into the experimentation and implementation phase of the study as captured in the following discursive manifestation of transformative agency:

Researcher: Okay, so I'm going to type everything up and then I'm going to send it to Thokozile, and she will translate into isiXhosa with some help. And then we'll send it to you, Gertrude and you can call a meeting again whenever everyone is ready. But you've got the notes, so maybe you and Mr Sadina can give the report back. Is that a good way forward?

Group leader: Things must get going!

Researcher: The committees will start working.

Woman: Yes. Let's keep going! (Change Lab #CL5)

The interventionist researcher also expressed commitment to provide support to the process in various forms but with an awareness of the participants' prevailing dependencies on external support as presented in previous sections (Section 7.3.1). The researcher closed the session by emphasising the aims of the study as investigating how people learn from each other to transform the object and patterns of activity: *"I will follow up, if this learning today has given you an opportunity to work together towards your aspiration and your vision"* (Change Lab #CL5).

7.4.9 Emergence of capability learning pathways for agricultural expansion with early manifestations of transformative agency and double stimulation

In this section I present a summary of the emergence of the capabilities and learning pathways identified by the women farmers' group for the extension of their sustainable agricultural activity as encompassed by their aspirational and well-being goals (Section 6.4 and Section 6.6). These capabilities are rooted in the hypothesised contradictions based on their initial historical and

ethnographic analysis during Phase One of the study. Each capability, together with the underpinning contradictions, were presented as *Second Stimuli* to the group during the Change Labs from Session One to Five (#CL1 to #CL5) and served as fertile ground for learning and the development of agricultural practices and aspirations. In the aforementioned sessions I worked with double stimulation as a principle and method to provoke participants' conflict of motives; stimulate further involvement in the analysis of capabilities and contradictions (Engeström & Sannino, 2011); foster collaborative design effort among participants by charting the Zone of Proximal Development (ZPD) to the formulation of possible solutions; as well as to nurture early forms of agency aimed at generating systemic transformation in the activity the participants were working on. The early learning and development of each capability (or Capability Learning Pathway) is outlined in Table 7.2 below depicting their evolution from the questioning and analysis of associated contradictions and the modelling and examination of solutions for feasibility in the expansive learning process where the ZPD took a deeper form in each pathway with the support of additional stimuli.

Table 7.2: Early learning and development of the Lutengele farmers group sustainable agricultural capabilities

(#CLx: Change Labs; #x: Capability; #Cx: Contradiction; #Px: Principle; #Sx: Solution)

Change Lab Sessions	Capability pathway	Second Stimuli from Phase One: Hypothesised Contradictions	Second layer of analysis of contradictions with DS tools (mapping, ranking tasks) in Phase Two: Discursive manifestations	Sub-pathways: with solutions in ZPD	Co-design of Auxiliary Stimuli, social learning and early transformative agency
#CL1 and #CL2	#A: Moral-relational aspect of sustainability and social-ecological wellbeing [with human and non-human] as "being able to practice sustainable agricultural practices"	#C1: Local prevalence of unsustainable practices	Critical conflict and sustainability-practices tension	[With tasks and mapping stimuli] Socio-ecological well-being as: #PA1: Healthy water sources and water infrastructure #PA2: Healthy forests (green, free of invasive alien plants and abundant wild fruits) #PA3: Healthy soil (free of soil erosion)	Locally developed sustainability visionary principles for engagement in agricultural activity (stimuli anchor I for reflection or self-evaluation along the CLs) Explicating and Envisioning speech and committing to sustainability of Common Good

Change Lab Sessions	Capability pathway	Second Stimuli from Phase One: Hypothesised Contradictions	Second layer of analysis of contradictions with DS tools (mapping, ranking tasks) in Phase Two: Discursive manifestations	Sub-pathways: with solutions in ZPD	Co-design of Auxiliary Stimuli, social learning and early transformative agency
				#PA4: Healthy grasslands (no veld fires and good pasture) #PA5: Healthy and happy people and animals #PA6: Safe place (free of crime)	
#CL3, #CL4 and #CL5	#B: Foundational/ institutional capability of forming a group or institution that would host and embrace all these capabilities and generate collective agency through a process of learning for the transformation of the activity itself	#C0: Food insecurity despite availability of productive resources #C12: Inadequate leadership to promote development	Initial conflicts as resistance on spatial scope and stakeholder reach. Exacerbated with double bind, aggravation and frustration when intersected with #C2 and #C3 water infrastructure and services	#SB1: Membership, criteria and registration #SB2: Leadership and Committees #SB3: Operational #SB4: Constitution and ToR [leading to #SC4 establish CMF as long-term]	Germ cell abstraction as idea of forming a group to break away from inefficient dependencies and gain collective power and reframing purpose of group as the power of collectiveness and turning gaze inwards Strategic actions with responsibilities as new stimuli (anchor II) From resistance to commissive agentic talk
#CL4 and #CL5	#C: Being water secured (ES)	#C2: Lack of water infrastructure #C3: Water insecurity	Conflict resolution lead to #SC1. Initial doubled bind to #SC2 with additional focus on #SC3 and #SC4 as long term	[With ranking task and sustainability principles stimuli] #SC1: Infrastructure solutions (spring protection, water tanks, boreholes and water pumps)	Development of strategic actions From resistance to commissive agentic talk

Change Lab Sessions	Capability pathway	Second Stimuli from Phase One: Hypothesised Contradictions	Second layer of analysis of contradictions with DS tools (mapping, ranking tasks) in Phase Two: Discursive manifestations	Sub-pathways: with solutions in ZPD	Co-design of Auxiliary Stimuli, social learning and early transformative agency
			Horizontal learning	#SC2: Water Infrastructure Committee #SC3: WH&C practices #SC4: Establish CMF (long term)	
#CL4 and #CL5	#D: Being able to use land effectively and being land secured (ES)	#C4: Land utilisation	Horizontal learning with some resistance to some soil conservation methods (contours or swales) with resolution reached #SD3	[With ranking task and sustainability principles stimuli] #SD1: Maximising land use #SD2: Soil Fertility #SD3: Soil Conservation methods (erosion)	Development of strategic actions From resistance to commissive agentic talk
#CL4 and #CL5	#E: Being knowledgeable and skilful for the pursuit of the envisioned agricultural practices (Basic or Human Capital)	#C5: Loss of sustainable practices #C6: Inappropriate uptake of available internal and external extension support	Basic capability to support expansion of other capabilities	[With ranking task and sustainability principles stimuli] #SE1: Training Workshops #SE2: Experimentation (demonstration sites) #SE3: Access to knowledge resources #SE4: Peer-to-peer Knowledge sharing #SE5: Internal group learning #SE6: learning exchanges	Development of strategic actions From explicating to commissive agentic talk Break-away from learning routines and dependencies on external training workshops
#CL4 and #CL5	#F: Having adequate agricultural inputs and equipment	#C8: Lack of financial capital #C9: Unsuitability of inputs	Conflict of motives	[With ranking task and sustainability principles stimuli] #SF1: Donations #SF2: Seed bank and exchange	Development of strategic actions From criticising to commissive agentic talk Break away from dependencies and becoming self-sustainable

Change Lab Sessions	Capability pathway	Second Stimuli from Phase One: Hypothesised Contradictions	Second layer of analysis of contradictions with DS tools (mapping, ranking tasks) in Phase Two: Discursive manifestations	Sub-pathways: with solutions in ZPD	Co-design of Auxiliary Stimuli, social learning and early transformative agency
#CL4 and #CL5	#G: Having access to labour to expand production	#C7: lack of local labour	Tension with resolution on labour as helping each other. Contradiction toned down	[With ranking task and sustainability principles stimuli] #SG1: Adapt planting when family around #SG2: Help each other	Development of strategic actions From criticizing to commissive agentic talk
#CL4 and #CL5	#H: Being able to invest in agricultural tools, equipment and other resources	#C8: Lack of financial capital	Conflict of motives	[With ranking task and sustainability principles stimuli] #SH1: Income generating	Development of strategic actions From explicating to commissive agentic talk Break away from external dependency to self-sustaining farming enterprise
#CL4 and #CL5	#I: Being able to access the value chain markets more competitively	#C10: Low production #C11: Lack of value chain and marketing support	Not a priority until collective increment of production and organisation	[With ranking task and sustainability principles stimuli] #SI1: Access to Market	Development of strategic actions From explicating to commissive agentic talk in future

The introduction of early contradictions were supported with additional *Second Stimuli* with the intention of generating further discussion and analysis. *Second Stimuli* involved, for instance, the use of participatory mapping and tasks to encourage participants to think and act differently about the object of activity and start to build a new model for the future and reconceptualisation of activity as presented in Chapter Eight. This led to locally developed sustainability visionary principles for engagement in agricultural activity as described in Section 7.2.2 above. The vision and principles assisted participants, by means of charting the ZPD, to further analyse contradictions, model and examine solutions using this new double stimulation tool. Other mediating tools included the use of a weighing or ranking activity brought into the *Change Labs*

sessions to solicit reflection and analysis of each capability and thus underpinning contradictions in relation to the group's aspiration-practice relationship. This led to the surfacing of further discursive manifestations of contradictions such as double binds and tensions among participants, which in turn became foci for charting the ZPD in developing a strategic plan with solutions and allocated responsibilities (see Section 7.4.8 above).

The historical analysis of contradictions produced the basis for identifying possible alternative directions for the future, as evidenced in representations of the collective ZPD or potential co-designed solutions as externalisations or objectifications of higher mental functionings or cognition distributed among participants. For example, in the analysis of *Capability #C* (being water secured) and associated *Contradictions #C2* and *#C3*, the model of activity began to take shape as participants examined the possible directions of development. The first spearhead was *#SC1* as an examination of various water infrastructure interventions with water storage as the most suitable option for the local conditions and needs; *#SC2* referring to the formation of a water infrastructure committee to drive solution *#SC1*; the adoption of WH&C practices (*#SC4*), and in the long term, working towards the formation of a local catchment forum (*#SC4*). In contrast to other expansive learning studies (e.g. Jalasi, 2018 and others), the ZPD was not constructed in a diagrammatic form for deliberation with the participants but by means of mediating tools to promote reflection and metacognitive development (as well as other forms of development) through the production of cultural artefact or tools in collaborative activity (Daniels, 2004) mediated by the researcher (Section 4.3.1.2). Early stages of transformative agency expressions emanated from the *Change Labs*, which led to participants taking consequential actions at everyday rhythm. Agentic transformations, however, were amplified with the introduction of new material stimuli as presented in Chapter Eight. Importantly, this chapter has presented the women farmers group value capabilities for the ascending of their aspirations to their expansion of their sustainable agriculture activity. Each capability represents a pathway from which learning can simultaneously lead to the development of other capabilities in the course of joint activity. In other words, "a single step in learning can represent a hundred steps in development" (Zaretskii, 2016, p.155) as depicted in Figure 8.1 to Figure 8.6 in Chapter Eight. The suite of capabilities (or capability set) are useful indicators of capability achievement and freedoms, that is, the participants' opportunity (or opportunity set) to expand their sustainable agricultural activity and empowerment (see Section 2.6.1).

7.5 Conclusion

This chapter has described the early stages of the expansive learning cycle which guided the women farmers' group from the Lutengele area, together with the interventionist researcher and assistant, to clarify the valued capabilities and novel solutions underpinning the attainment of their agricultural aspirations and expansion of the object of activity they were working on (Section 7.4.9). CHAT was used by drawing on Developmental Work Research (DWR) and formative intervention research methodologies with the use of Change Laboratory method. During this early stage in the learning process, participants interacted in initial constructions of their object of activity and the co-designing of new auxiliary stimuli. These were a set of locally developed sustainability principles for the Common Good of the local micro-catchment (Section 7.2.2); and a strategic plan with proposed actions and responsibilities (Section 7.4.8) was used to trigger further involvement and metacognition processes along the learning process. The chapter has also presented how these principles and solutions evolved from the early surfaced contradictions (Phase One of study) with supporting mediating stimuli or tools (e.g. participatory and ranking tasks) which led to further analysis and consequently triggering dissonances among participants catalysing towards collective agency and transformations in the work activity. The micro-analysis of the unfolding of the aforementioned capabilities and associated learning pathways is presented in Chapter Eight. The next chapter will focus on how collective agency and consequential actions were amplified by the introduction of new material stimuli and thus the movement from the abstract concepts relating to the object to the concrete expansion of the agricultural activity and their empowerment.

CHAPTER EIGHT: TRANSFORMATIVE STAGES OF THE EXPANSIVE LEARNING PROCESS

8.1 Introduction

The previous chapter, Chapter Seven, presented the early stages of the expansive learning process from the analysis of the activity system to the formulation and examination of potential solutions towards the expansion of the women's group's sustainable agricultural capability. The chapter also outlined the capability learning pathways underpinning the expansion of activity in this regard as co-developed by the participants within the initial epistemological learning actions in the process. This chapter, Chapter Eight, discusses the transformative phase of the cycle and the unfolding of capability learning pathways towards the expansion of food production capability and empowerment. Section 8.2 sums up the actioning and thus the manifestations of transformative agency relating to the proposed strategic solutions derived from the initial Change Laboratory workshops (#CL1 to #CL5). In Section 8.3 the focus turns to examining the catalytic effect of new material and conceptual stimuli on the group's collective agency and collective capability when intersecting in the expansive learning cycle. The new external stimuli assisted to amplify the transformative agenda resulting in the acceleration of concrete developmental transformations, the navigation and transgression of deep-rooted gerontocratic power dynamics (Section 8.4), and ultimately the re-framing and re-conceptualisation of activity and practices (Section 8.5). In this chapter I illustrate the accelerated emergence of change and transformation infused by the introduction of new stimuli by drawing on Sannino's Vygotskian double stimulation model (Sannino, 2015b) and by tracking the process from collective decision-making to collective decision-implementation in the expansive learning process. Herewith, the *Iqumrhu*, or conception of an organised group proved to act as a powerful vehicle for ascending from the abstract to the concrete. In other words, the move from sustainable agricultural aspirations to their concrete manifestation or capability expansion. These last stages of the interventionist research process, Change Labs Six to Nine, were undertaken over thirteen months from August 2017 to September 2018 (see Table 7.1 in Chapter Seven).

8.2 Experimentation of the new model of activity at everyday rhythm

A *Follow up Session* (#FS1) was held on 8 August 2017, six and a half weeks after Change Lab Five (#CL5). The session was to follow up on the implementation of the modelled solutions co-developed by the research participants during the early stages of the expansive learning process

as consolidated in the strategic plans, actions and responsibilities for the expansion of food production capabilities outlined in Box 7.3 in Chapter Seven. Five committees were provisionally assigned to drive these actions as a collective endeavour. In this session the strategic plans served as auxiliary stimuli to generate discussion and reflections between the group representatives or research participants assigned to the committees and the interventionist researcher and research assistant. The data revealed that the Lutengele farmer's group had not come together since their last group interaction in Change Lab #CL5 to advance their learning and the development of their activity, nor had the committee members. Despite the willingness to enhance their working relationships and improve their collective capability to drive the learning process as presented at the end of Change Lab #CL5, participants indicated that the reasons for not jointly moving forward with the plans were various. On the one hand, some committee members were affected by the uptake of temporary jobs and therefore did not find suitable time to allocate to their tasks, and on the other hand, there were misconceptions and poor clarity on their roles as committee members (#FS1). Despite the lack of progress in terms of implementation of their designed solutions and strategies, the members of the group present indicated that the group would pursue their plans through the assigned committees but that the members needed to be reviewed through further consultations and motivations. Commissive agency in this regard is evident in the following extract:

Group leader: Okay. Ladies from Qhoboshendlini, let's meet at that spot and do that. Let's take this seriously. I wanted Mrs Majola to be part of one of the committees. Has she already been placed in one?

Woman: No, I haven't.

Group leader: Okay. So, I'll have people from Qhoboshendlini that I choose. I don't want cowards. They say that in heaven they don't allow cowards, do you know that? If you are a coward, you won't get into heaven. You'll live forever on earth; do you know that? (Follow-up session #FS1)

The session opened up an opportunity for some committee members to energise and give impetus to the germ cell abstraction as discussed in Section 7.3.2 and further described in Section 8.3.5 below. The focus on strengthening the group (*iqumrhu*) or institution became increasingly evident during this session as manifested by, for example, one of the members' agentive speech:

Woman: ... We have a long way to go, but the way I see it we are closer to our goals than we think. So, we need to put more energy and effort into things now. I currently have seven projects that I'm working on. I braid, I sew, I farm chicks and I farm. I have my hand in many things. So today I got the call and was told I'm part of this and that committee. I don't even know what that is. So, I want to apologise to you all for not

knowing. I am the kind of person who puts in the work required when I want to get something. I want all of us to be like that in this group. We should hang in there, put in the hard work now and it will pay off ... Thank you for coming and reporting back to us. We can now see some progress and are motivated to work. (Follow-up session #FS1)

The above confirmed the initial stages of the germ cell for the *Iqumrhu* as a vehicle to move from the abstract conception of activity or aspirations to their concrete manifestation in terms of sustainable agricultural practices and social justices. However, many problems arose within the group when working towards the implementation of their strategies with the extraction of the germ cell catalysing for more collective agency and power dynamics as presented in the text that follows (Section 8.3).

Furthermore, the discussions and feedback provided by the participants during this session, Follow up Session 1, indicated some progress in terms of actioning the proposed solutions designed in the previous Change Lab #CL5. These mainly corresponded to capability learning pathway #F (access to agricultural inputs and equipment), solution #SF1 (mobilising donations) and solution #SF2 (establishing a seed bank) as depicted in Figure 8.1 below and captured in the following excerpts:

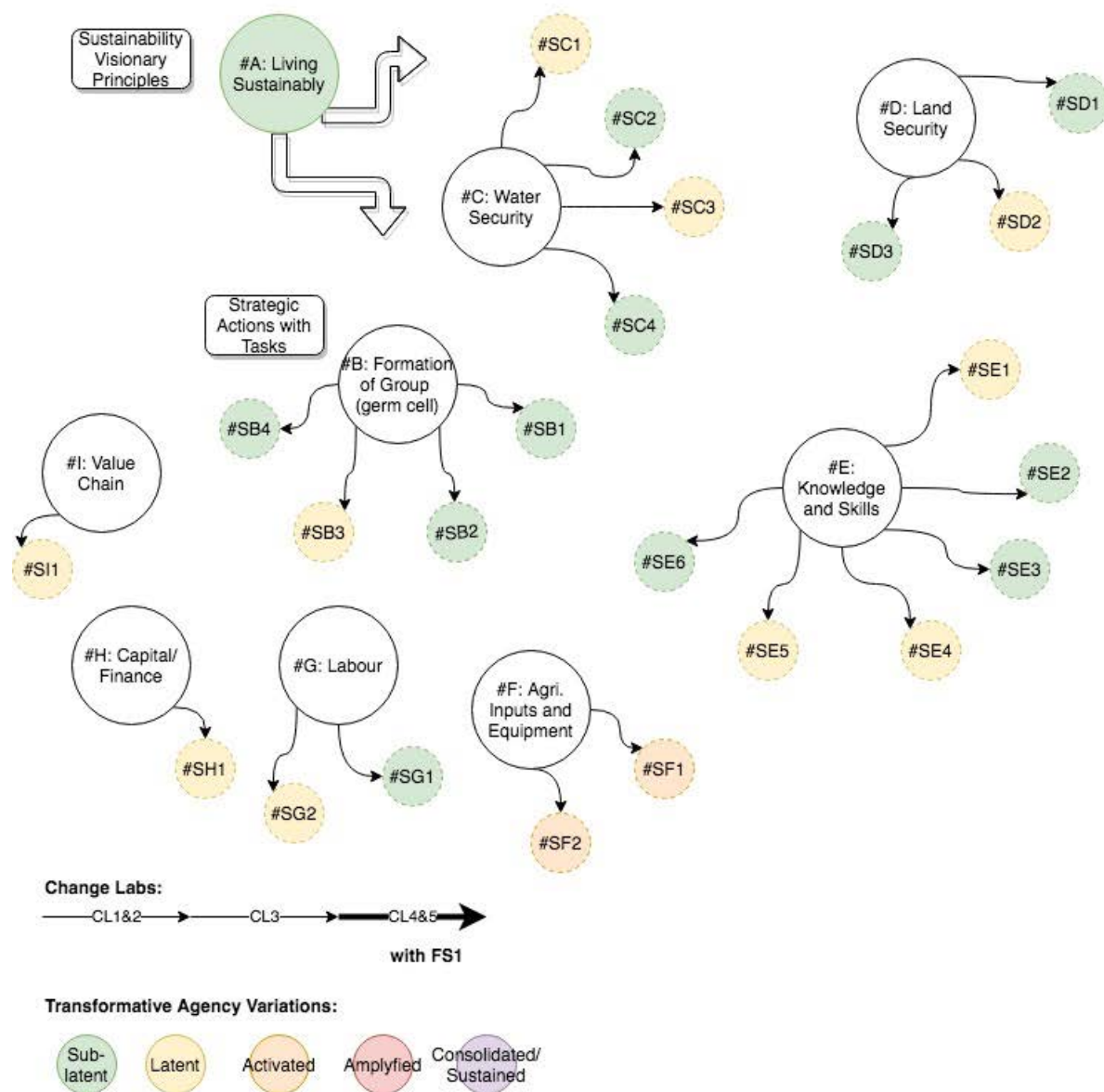
Group leader: I did get something done. I met with Mr Sadina and went to the Department of Agriculture to put a request for a donation for the project. I went to Boxer and they said they will get back to me. I couldn't specify what we wanted, I told them they could give us what they can. Whether that is seeds or garden forks, it would all be good. We would appreciate all of it. As for the Department of Agriculture, they said they received my request for a donation and gave me packets of seeds ... I went to three people, not two. I went to Mr Mnyaka because I know him from long ago. I humbled myself and asked him for a donation; we would appreciate anything. He said that while he can't promise anything, he will call me back soon ... I got offered five and I took two. I gave them to the people in Qhoboshendlini and I didn't take for myself. All of us have planted these seedlings ... Anything. I can't say I want forks or rakes. I must just say what you've got, I'll be thank you for. And I'm still going to Entabeni Hardware. I'm sure this week I'll go there. Yes, I didn't wait for Mr Sadina because I was already in town and didn't want to call him from whatever he was doing. I just asked for the donation and then reported back to him. I told him that the seedlings are a donation from the Department of Agriculture. (Follow-up session #FS1)

Woman: I never saw anyone after that workshop. But what I did was I started collecting seeds from my carrots and other but for my own garden. (Follow-up session #FS1)

Man: In terms of collecting seeds, I've collected carrot seeds already. The only thing is left is to wash them and re-plant them. When I get my grant, I want to buy more plants. I have eaten the plants from last season and some of them have gone off from drought. But I've collected carrot seeds and won't need to buy those at least. (Follow-up session #FS1)

Moreover, other capability learning pathways had already been triggered as expressed in the various instances of transformative agency varying from the *envisioning* and *committing* manifestations represented as 'sub-latent' and 'latent' variations respectively and illustrated in Figure 8.1.

Additionally, the data corpus also provided evidence that other capabilities were already manifested to some extent but not consequential of the formative research intervention herewith described but rather more as routines in practices carried out by some individual participants prior to and alongside the expansive learning process. Examples of this type of 'latent' transformative agency expressions corresponded to *Capability #B* (formation of a group) through solution #B3 (ad hoc operationalisation); *Capability #C* (water security) via the implementation of solutions #SC1 (some water infrastructure already installed) and #SC3 (WH&C practices); *Capability #D* (being land secured) with solution implementation #SD2 (application of soil fertility methods); *Capability #E* (being knowledgeable and skilful towards food production practices) via solution implementation #SE1 (access to knowledge workshops), #SE4 (peer-to-peer learning) and #SE5 (some ad hoc internal group learning); and *Capabilities #H* and *#I* (being financial secured with the assistance of some local produce sales) – refer to Figure 8.1 below.



Capability Learning Pathways:

#A: Moral-relational aspect of **sustainability** and social-ecological wellbeing

#B: Forming a group or institution

#SB1: Membership, criteria and registration

#SB2: Leadership and Committees

#SB3: Operational

#SB4: Constitution and ToR (leading to #SC4 establish CMF (long-term))

#C: Water Security

#SC1: Infrastructure solutions (spring protection, water tanks, boreholes and water pumps)

#SC2: Water Infrastructure Committee

#SC3: WH&C practices

#SC4: Establish CMF (long term)

#D: Land Security

#SD1: Maximising land use

#SD2: Soil Fertility

#SD3: Soil Conservation methods (erosion)

#E: Knowledge and Skills

#SE1: Training Workshops

#SE2: Experimentation (demonstration sites)

#SE3: Access to knowledge resources

#SE4: Peer-to-peer Knowledge sharing

#SE5: Internal group learning

#SE6: learning exchanges

#F: Agricultural Inputs and Equipment

#SF1: Donations

#SF2: Seed bank and exchange

#G: Access to Labour

#SG1: Adapt planting when family around

#SG2: Help each other

#H: Finance/Capital

#SH1: Income generating

#S: Access to Market Value Chains

#S1: Access to Market

Figure 8.1: Capability learning pathways: Follow up Session 1

In summary, up to this point in the expansive learning process, the implementation and experimentation of the new model of activity as envisaged by the women's group in Change Lab Five (#CL5) and carried out via the expansion of the associated capabilities, collective agency and collective action was not yet fully activated with the exception of some experimentations at the level of mobilising resource donations, seed collection and general commitment to work as a group and all round unfolding at a sluggish and gentle rhythm on the part of a few group individuals. The following section describes the catalytic effect that newly introduced stimuli had on the groups' agentic activation and amplification of transformative agency and capability expansion towards sustainability and food production practices in the Lutengele villages.

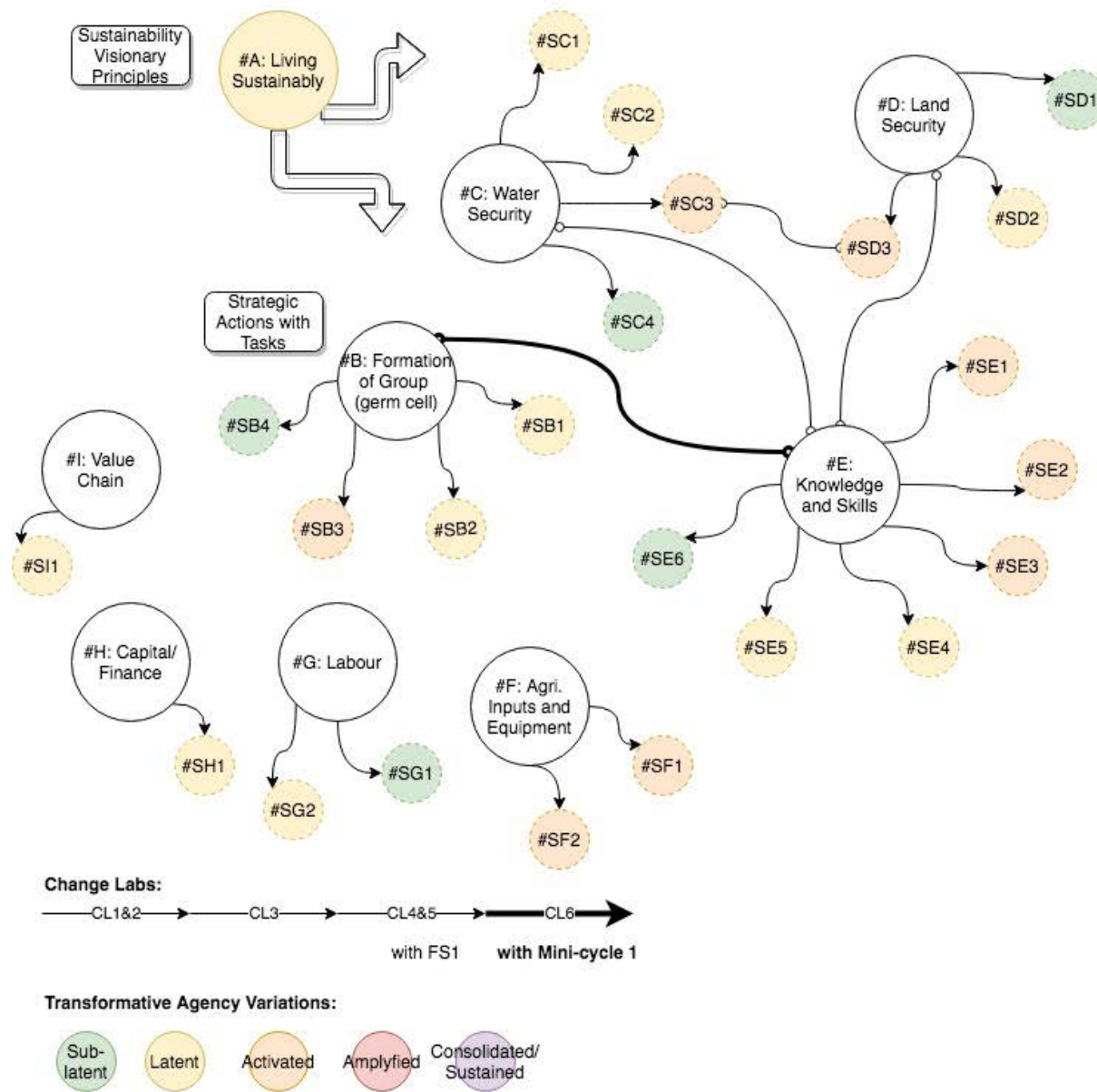
8.3 Amplifying transformative agency, power dynamics and action with the introduction of new double stimulation stimuli in the form of material and conceptual inputs

This section carefully describes the analysis of the data generated from the Change Labs Six to Nine (#CL6 to #CL9) including a number of Follow-up Discussions (FD) held between the researcher and the field assistant in between workshops. This phase is characterised by the introduction of new stimuli in the form of material and conceptual inputs, which gave a high level of impetus for the collective action that the group was working towards. This was very catalytic but also raised new challenges for the group in the form of gerontocratic power dynamics, tensions and the surfacing of past and unresolved conflicts and risks among participants. Nevertheless, the introduction of this new type of stimulus allowed for the accelerated movement from the abstract to the concrete, especially with the introduction of water storage systems or water tanks. This form of stimulus was regarded by the group as an 'incentive' or *Chathas*. These are valued inputs or resources for the agricultural activity to expand and/or for the improvement of their quality of life. The *Chathas* served as motivational stimuli or *auxiliary motives* as presented in Section 8.3.4 below for the group's decisions or proposed solutions to be implemented and thus for the triggering of transformative agency or action taking.

On 9 August 2017 a Change Laboratory workshop Six (#CL6) was held in conjunction with a mini-cycle or session on the facilitation of WH&C. The introduction of new knowledge and skills on water harvesting and conservation was geared to support the implementation of the collectively designed innovations in order to advance the food production activity and associated capabilities. The mini-cycle embedded in the CL6 served as a conceptual tool or stimuli and was facilitated by a local NGO organised by the formative interventionist researcher. The content of

the mini-cycle centred on the introduction of swales as a WH&C method as well as the introduction of fruit trees to be planted along the swales or trenches dug on the contour in order to capture run-off which would seep into the soil towards the root of the trees. The local NGO confirmed that group members would be provided with a free tree for each 10m of swale dug in their garden. The trees in turn also acted as stimuli or material inputs for the research participants to exercise both collective and individual agency towards the implementation of WH&C practices. This, however, also required and affected the advancement of other capabilities or functionings as depicted in Figure 8.2 and Figure 8.3.

In brief, Figure 8.2 below illustrates that with the introduction of the first conceptual tool or mini-cycle, several capability learning pathways 'pushed forward' by means of the group's transformative agency. In other words, the conceptual workshop on WH&C triggered the group's 'activation' of various sub-capabilities or implementation of solutions such as the actioning of the training workshop (#SE1), the use of a learning demonstration site (#SE2) and access to adequate knowledge resources (#SE3). Consequently the mini-cycle also had a positive effect on the water infrastructure committee (#SC2), and critically influenced the implementation of WH&C (#SC3) and soil conservation practices (#SD3) as a whole. Additionally, the mini-cycle also reinforced the need for the Lutengele women's group to move towards the strengthening of the group as an entity to drive learning and change as depicted in the sub-pathway or solution #SB1 (membership, criteria and registration) and #SB2 (leadership and committees). The mini-cycle, coupled with the Change Lab #CL6 also provided a platform for the group to hold discussions and reflections on their activity and the planning of future tasks (#SB3) as captured in their collectively developed strategic action plan.



Capability Learning Pathways:

#A: Moral-relational aspect of **sustainability** and social-ecological wellbeing

#B: Forming a group or institution

#SB1: Membership, criteria and registration

#SB2: Leadership and Committees

#SB3: Operational

#SB4: Constitution and ToR (leading to #SC4 establish CMF (long-term))

#C: Water Security

#SC1: Infrastructure solutions (spring protection, water tanks, boreholes and water pumps)

#SC2: Water Infrastructure Committee

#SC3: WH&C practices

#SC4: Establish CMF (long term)

#D: Land Security

#SD1: Maximising land use

#SD2: Soil Fertility

#SD3: Soil Conservation methods (erosion)

#E: Knowledge and Skills

#SE1: Training Workshops

#SE2: Experimentation (demonstration sites)

#SE3: Access to knowledge resources

#SE4: Peer-to-peer Knowledge sharing

#SE5: Internal group learning

#SE6: learning exchanges

#F: Agricultural Inputs and Equipment

#SF1: Donations

#SF2: Seed bank and exchange

#G: Access to Labour

#SG1: Adapt planting when family around

#SG2: Help each other

#H: Finance/Capital

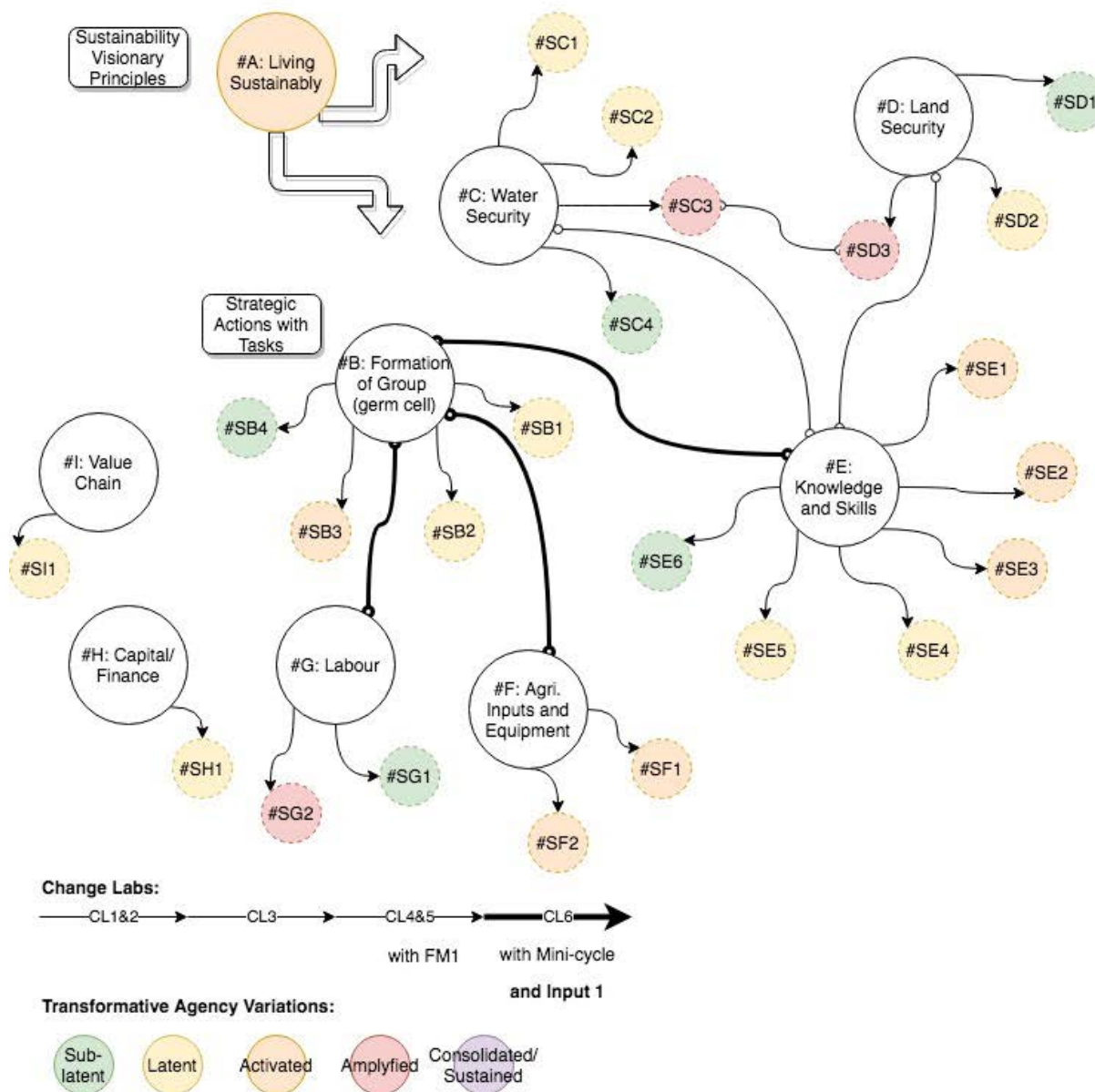
#SH1: Income generating

#S: Access to Market Value Chains

#SI1: Access to Market

Figure 8.2: Capability Learning Pathways at CL6 and Mini-cycle 1

Figure 8.3 below illustrates the amplifying effect that the introduction of fruit trees had on the group's collective action as a material stimuli to drive transformative agency and change in the food production activity. As pointed out earlier, the trees were considered as *Chathas* or incentives by the participants and thus acted as auxiliary stimuli to the rapid implementation of swales and mobilisation of WH&C (#SC3) and soil conservation practices (#SD3) by the group members. Likewise, the formation of the group gained momentum as a membership register (#SB1) was required by the local NGO in order to identify the tree-planting beneficiaries. As a result the 'Help and Assistance' committee (#SG2) was activated by offering their services to those members who were not in a position to undertake the manual tree-planting and swale digging effort required. The trees also served as effective motivators for the group members to take up micro-loans to pay for manual labour for the implementation of swales and planting of trees (#SG2).



Capability Learning Pathways:

#A: Moral-relational aspect of **sustainability** and social-ecological wellbeing

#B: Forming a group or institution

#SB1: Membership, criteria and registration

#SB2: Leadership and Committees

#SB3: Operational

#SB4: Constitution and ToR [leading to #SC4 establish CMF (long-term)]

#C: Water Security

#SC1: Infrastructure solutions (spring protection, water tanks, boreholes and water pumps)

#SC2: Water Infrastructure Committee

#SC3: WH&C practices

#SC4: Establish CMF (long term)

#D: Land Security

#SD1: Maximising land use

#SD2: Soil Fertility

#SD3: Soil Conservation methods (erosion)

#E: Knowledge and Skills

#SE1: Training Workshops

#SE2: Experimentation (demonstration sites)

#SE3: Access to knowledge resources

#SE4: Peer-to-peer Knowledge sharing

#SE5: Internal group learning

#SE6: learning exchanges

#F: Agricultural Inputs and Equipment

#SF1: Donations

#SF2: Seed bank and exchange

#G: Access to Labour

#SG1: Adapt planting when family around

#SG2: Help each other

#H: Finance/Capital

#SH1: Income generating

#I: Access to Market Value Chains

#SI1: Access to Market

Figure 8.3: Capability Learning Pathway at CL6 with Input 1

The second Mini-cycle session (#MC2) was embedded in the Change Lab workshop Seven (#CL7). This session was held on 20 September 2018, after a period of a month from the previous Change Lab Workshop Six (#CL6) and Mini-cycle One (#MC1). The group confirmed that they held a meeting to discuss issues pertaining to the swale/tree-planting tasks such as the drafting of a membership register, as noted above. The focus of the Mini-cycle Two (#MC2) continued as the building of the group members' cognitive and practical enhancement around WH&C practices such as mulching, intercropping, companion planting, natural soil fertility and pest management, to name a few. Practical demonstrations were held with the group by the NGO at the learning demonstration site. The introduction of the aforementioned conceptual stimuli assisted to substantially amplify the expansion of the participants 'basic' capability in terms of knowledge and skills on water harvesting and conservation practices as depicted in Figure 8.4 above through the implementation of various capability sub-pathways or designed solutions. These related to #SE1 (training workshops), #SE2 (demonstration site) and #SE3 (knowledge resources). In turn, and as a result of these inputs into capability pathway #SD, land use (#SD1) and soil fertility (#SD2) practices were drastically amplified – refer to Figure 8.4 below.

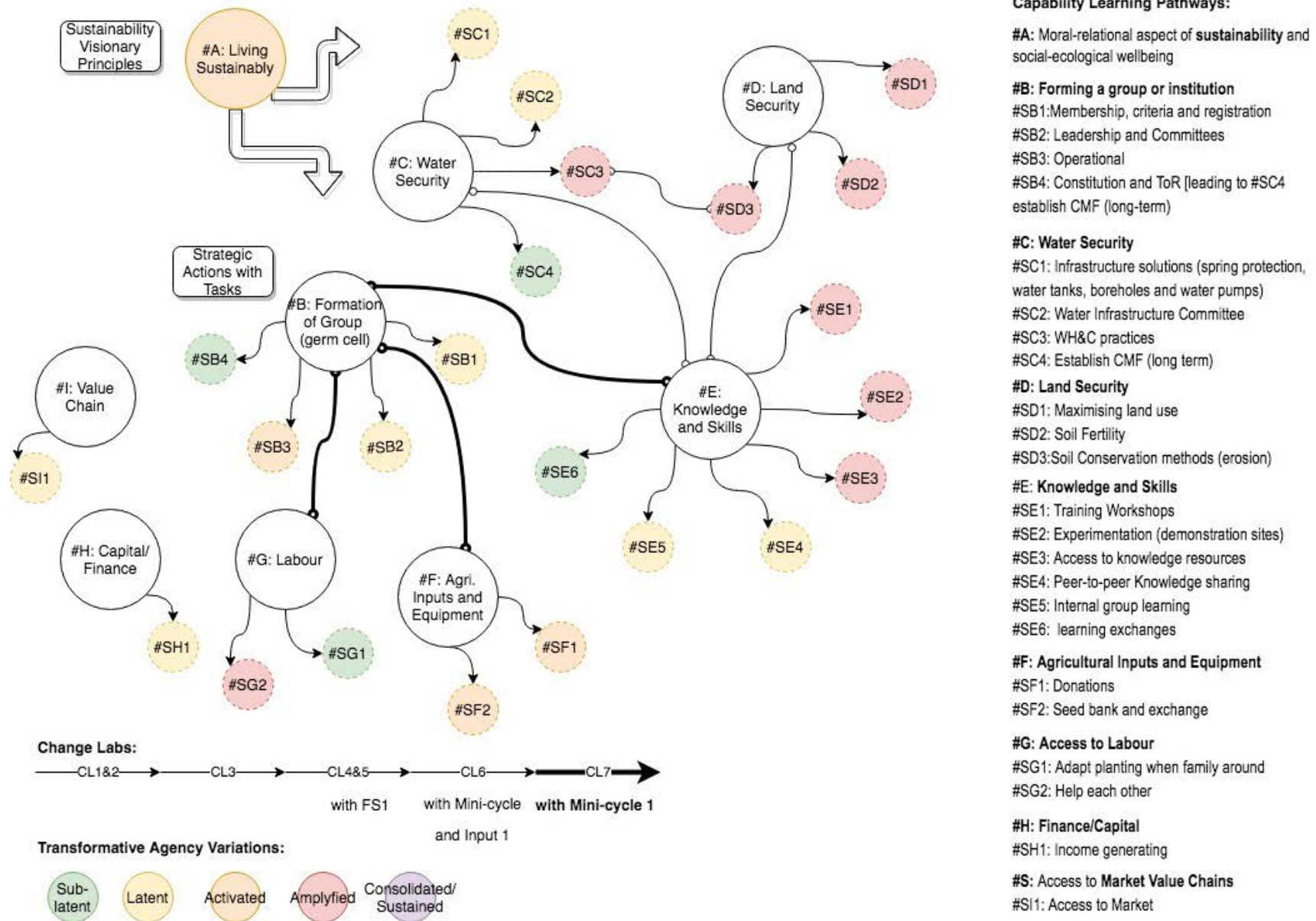
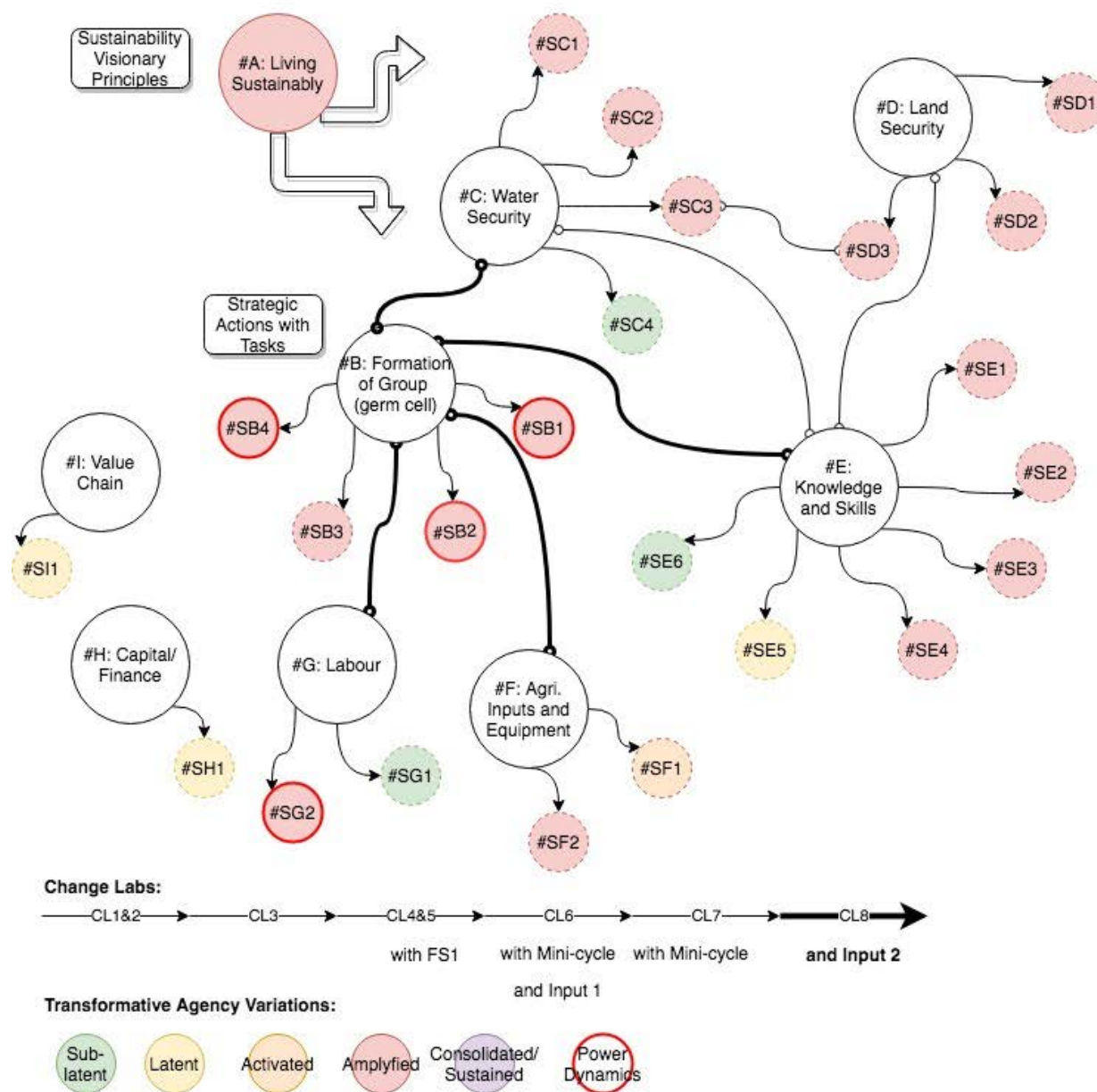


Figure 8.4: Capability Learning Pathway at CL7 with Mini-cycle 2

The following Change Lab Workshop Eight (CL8) took place on 31 January 2018. The session provided an opportunity for the group participants to report and reflect on the implementation of their strategies and capability learning pathways as presented in Figure 8.5 below.

By this session the register was finalised as a result of the implementation of swales/tree planting (#SB1). However with the introduction of the new material stimuli by the NGO in the form water storage systems or water tanks aimed to ease the supply of water for irrigation at household level (#SC1), new power dynamics among the group members emerged. The developing of criteria for the selection of the water tank beneficiaries proved to be challenging and created the most problematic tension in the expansive learning process. The introduction of water tanks led to new forms of power mobilisation and navigation thereof, especially for young *makotis* and newcomers (see Section 8.3.1 below). Additionally, the formalisation of the group advanced as requirements for the disbursement of the new material stimuli were tabled. These included the sorting out of a group constitution with clear terms of reference in order to consolidate membership (#SB4) and beneficiary selection criteria as indicated earlier. The constitution and terms of reference were a formal prerequisite for the mobilisation of the water tanks subsidy offered by the local NGO (#SF1). The process also required clear direction and leadership (#SB2) as well as an operational plan for the group to continue supporting each other, learning and developing together (#SB3), but additional tensions around the role of the *makotis* surfaced in dealing with these matters (#SG2). The water infrastructure committee (#SC2) as well as other committees became very instrumental in the selection and distribution process of the water tanks. Overall, the group came to the realisation that the power to mobilise such resources or inputs resided with them as a group and as such, their collective capability paid off (see Section 8.6 on reflection and consolidate stages of the expansive learning cycle).



Capability Learning Pathways:

#A: Moral-relational aspect of sustainability and social-ecological wellbeing

#B: Forming a group or institution

#SB1: Membership, criteria and registration

#SB2: Leadership and Committees

#SB3: Operational

#SB4: Constitution and ToR [leading to #SC4 establish CMF (long-term)]

#C: Water Security

#SC1: Infrastructure solutions (spring protection, water tanks, boreholes and water pumps)

#SC2: Water Infrastructure Committee

#SC3: WH&C practices

#SC4: Establish CMF (long term)

#D: Land Security

#SD1: Maximising land use

#SD2: Soil Fertility

#SD3: Soil Conservation methods (erosion)

#E: Knowledge and Skills

#SE1: Training Workshops

#SE2: Experimentation (demonstration sites)

#SE3: Access to knowledge resources

#SE4: Peer-to-peer Knowledge sharing

#SE5: Internal group learning

#SE6: learning exchanges

#F: Agricultural Inputs and Equipment

#SF1: Donations

#SF2: Seed bank and exchange

#G: Access to Labour

#SG1: Adapt planting when family around

#SG2: Help each other

#H: Finance/Capital

#SH1: Income generating

#S: Access to Market Value Chains

#SI1: Access to Market

Figure 8.5: Capability Learning Pathway at CL8 with Input 2

In summary, the value placed on the conceptual and material *Chathas* was catalytic for transformative agency, especially for the movement from commissive talk to individual and collective action and ultimately the building of activity (functionings in activity) and capabilities. The following sections, Section 8.3.1 to Section 8.3.5, provide evidence on the deliberations, reflections, agentic talk and collective decision implementation from the micro-analysis of the transformative stages of the formative research intervention.

8.3.1 *Executions* in the 'Institutional/foundational' Capability Learning Pathway with material *Stimuli*: Forging the women's farmer group or 'Iqumrhu'

This section presents a summary of the transitions undertaken in capability learning pathway 'group formation'" (#B) from CL6 to CL8 with the introduction of material *Chathas* as represented in Figure 8.3 and Figure 8.5 above. The section provides excerpts from the data as examples of the catalysing power of material *Chathas*, these being both the trees/plants and water storage, on collective agency (Section 8.3.3). Evidence of transformative agency from commissive talk to taking action, including some variations, found during the experimentation and implementation epistemological steps of the expansive learning, is provided, as well as some of the power struggles encountered in the process among members of the group.

8.3.1.1 *Consolidation of Membership, Criteria and Registration* (#SB1).

Register and membership:

Woman: Need a register! (Change Lab #CL5)

The group register developed as a way to find out who was part of the group in order to define who would be benefiting from the tree planting and swale implementation initiative (Change Lab #CL5). The group welcomed new people to the group resulting in additional examination and the need for updating the register with new members (Change Lab #CL7). The register was drafted for the swale/tree-planting phase, reviewed and finalised prior to the selection and disbursement of the water storage systems (Change Lab #CL8):

Research assistant: So there is a register for Qhoboshendlini and Tyityana, it's just that the woman in charge isn't here today?

Group leader: She said she might arrive at eleven a.m..

Research assistant: But there is one, right?

Group leader: Yes, she has one. (Change Lab #CL8)

Requirements to join the group (membership):

Defining membership criteria to join the group undertook various forms throughout the expansive learning process – see also in Section 7.3.1.2. The research participants recognised that anyone could join in by attending workshops, “you just show up!” (Change Lab #CL7). However, there was general agreement on having three groups, the original one; the one extended as part of the initial expansive learning process, and one for the newcomers who trickled in as they heard about the workshops and incentives. Initially, the different membership ‘status’ would determine a member’s position in relation to accessing benefits or resources mobilised such as water tanks. This brought about some tensions within the group with a resolution being to welcome everyone but if not attending and participating in the group activities and being a keen food grower or farmer, the new members would be left behind no benefits (Change Lab #CL8):

Group leader: Good morning everyone. I was going to say something to everyone. I would like for all of us to get along. It shouldn't be that when there is a problem, Thoko is told or people are told behind closed doors. I don't want for anyone to feel like they can't be in the group. The thing is, we attend meetings and some people don't. Obviously if you don't attend meetings you will be left behind. We are not choosing certain people and leaving others out. We want to work together so that we can grow. I'm asking all the women here, please attend meetings and workshops. (Change Lab #CL8)

Woman: Any issues should be sorted out then and there. Otherwise it will seem like we had bottled up our feelings. Like with this situation now, participants were chosen and people were not here. Now people will butt heads over this issue instead of getting to work. That's why we should sort it out immediately so we can move on.

Man: Morning fellow farmers. We started with group one and group two. Now the way I see it, we have a group three. This group needs to be given all the tools that we have so that it's not left out. Thank you.

Woman: Good morning fellow farmers. I want to add onto what's being said about the growing number of groups. There are still others that would like to join this group.

Researcher: Is that a good or a bad thing?

Group: It's a good thing! (Change Lab #CL8)

Selection of beneficiaries and criteria:

The selection of beneficiaries for the material inputs was a contested terrain which was directly dependent on the provision of a group membership register (as referred to above) and the criteria for selection depended on the nature and volume of the input or material resource itself. The need for finalising a beneficiary list prompted the group to come together (#SB3) outside the Change Laboratory workshop as well as for the group to clear out some previous struggles pertaining to favoritism of some members over others (Follow-up discussion #FD_Oct'17). These

tensions were amplified when the second material input, water storage systems, were introduced in Change Lab Eight (#CL8). The introduction of the proposal for installation of tanks created the highest tension in the process. These tensions built up from a previous water infrastructure project (DWAS pilot project) and so the group had to clear the air before moving forward (Change Lab #CL8). It was perceived that if members were actively involved in the selection process, it would put them at risk of being mistreated and threatened by other members. As such, the initial reaction was to leave it up to external parties, such as the researchers:

Group leader: Ladies, I don't want to be the one who judges people's gardens. We must decide together ... If I say anything, it'll be like I'm choosing people when in fact I love you all. So, they should speak and decide how things will get done.

Woman1: Good morning to all of you. This question you are asking us is difficult. That we have to choose people? No, it's very difficult. I think it should be you [researchers] who should choose.

Woman2: Please don't put this responsibility on us. Even the first time when the tanks came, it created a lot of tension. I suggest we follow the method of when that white man came into people's houses and chose. Because if we choose ourselves, it will cause a lot of resentment and gossip. (Change Lab #CL8)

Man: Good morning fellow farmers. This situation where we have to choose the criteria is complex. The way I see it, since we have a set of criteria that we were chosen by, I put the decision back to our leaders. The ones who gave us the tanks in the first place. They should make the decision on a set of criteria. Then they check with us if we are okay with it. It shouldn't be us who choose.

Research assistant: But why don't you want to choose for yourselves?

Man: We are lessening the burden on ourselves by asking you to decide how you want to gift us. We don't want there to be conflicts and division within the group.

Woman: I don't think we can choose for ourselves because people are gossiping and talking badly about each other. I was even reluctant to use the water from the tanks for a while [from previous RWH project]. I even felt threatened going to town. It should be decided by you, the leaders. (Change Lab #CL8)

The resistance to this process continued and was echoed by other participants who indicated that choosing beneficiaries could create physical conflicts and even put people at risk of not being considered as a beneficiary as reflected below:

Woman: I spoke and suggested someone, then I missed out on getting a tank. So, I don't want to get involved this time. If the Chiefs gave us one or two tanks each, it would be easier for us. I had already made plans thinking I was getting a tank. They heard I was talking a lot; they took me off the list. (Change Lab #CL8)

Nevertheless, further deliberations led to the recognition that the selection process should be transparent to avoid tensions and threats and thus, clear criteria should assist despite participants not being inclined to be involved in the actual selection processes:

Research assistant: When I look at it, it seems some of you are scared to speak. What happened that has made you so scared.

Woman: The thing is, when the tanks came the first time, a group of white people went into people's gardens in Tyityana and Qhoboshendlini. They left and came back going into certain homes with their equipment, measuring things. They didn't tell us that they chose certain people and they didn't say why they chose those people. That's why we're saying that those same white people should come back and go into the gardens of the farmers. Because that first time it was painful. We were being threatened and I felt like it would be better for them to take the tanks away. People were wondering what those who got tanks did to get them.

Research assistant: So, I can see now why people are afraid to speak. There are threats to them. But you need to speak up.

Woman: Speaking puts you in danger. It puts you in more danger than being physically threatened. (Change Lab #CL8)

The developing of selection criteria proceeded to an envisioning discussion as a manifestation of transformative agency and learning among the group members as further examination on this topic took place in Change Lab Eight (#CL8) by suggesting that those members in need such as the elder and those who did not receive or had access to tanks should be prioritised:

Woman1: My children, in honest truth, even at schools they choose the children who are most needy. So, we should do the same. Choose the women who you feel are the frailest.

Research assistant: So, you're saying we should first look at age as part of our criteria?

Woman2: Yes.

Research assistant: [To the group] So do you agree with Mrs Makayi's suggestion?

Woman2: How about we do it like this, we know we have tanks in Tyityana and how many of us there are, then minus the people in Qhoboshendlini. That's twenty, so there are twenty people who have tanks. (Change Lab #CL8)

The suggestion provoked further resistance and disagreement from the young members or *makotis* who indicated that they should also be considered on equal terms. This ended up in the recognition of young *makotis* as potential beneficiaries:

Woman: Good morning to you all. I want to ask, why is it that we are only choosing old people to be prioritised for tanks when there are young people who have bigger families to feed? We are church-going people. Why are we making ourselves God where we don't need to be? In church, we pray together but now when we are outside, we are fighting over tanks. (Change Lab #CL8)

A turn in the process was consequently manifested in commissive speech by indicating that the group should be actively involved in the development of the water tank beneficiary criteria:

Woman: There is no reason why we can't do as these leaders are asking us. We can ask God to guide us the way we do in everything else. Let's sit down and pick the criteria like they are asking us. (Change Lab #CL8)

As a result, criteria and the process for selection was co-designed by the participants and included indicators of good food production practice, household willingness and motivation, current accessibility to water resources (or lack of) to name a few:

Young woman: I was going to say, how about we start from the people who don't have tanks until they all have. Then we look at the elderly women as well as the makotis and see how great their gardens are and how good their produce is. For example, we could say you have to have produced six or seven items or different variety of food as criteria. (Change Lab #CL8)

Woman: Our group was great until these tanks arrived. So, I'm thinking to myself, write a list of the people who don't have tanks and then sit down and decide who gets two or one. (Change Lab #CL8)

Group leader: Let's not fight over something that has not yet arrived. I want to share something that I thought about last night. I don't want to go home without sharing it. Some might not like what I have to say, but I think that those people who have tanks should accept tanks up until they get their 20,000 litres. So, if you don't have any tanks, you get four tanks. If you have two tanks, you get another two. We can't be selfish and block the blessings of other people who need the tanks more. (Change Lab #CL8)

The learning engagement, however, raised discomfort within some members of the group as other members started to air past disconcerting or unfair incidents by challenging the rooted power held particularly by one member of the group:

Group leader: We need to remind ourselves that we are Christian people. I am disappointed. I thought that we were going to treat each other with respect. You know, God can give you ten children and take them all away from you because you never respected what He gave you. You will be lonely and unhappy. We must respect God's blessings. I really thought people would speak well of each other here today ... We just

need to organise ourselves and our mission and approach the NGOs. But I am amazed at this behaviour. I thought you would say good things and be happy. There are people sitting behind me here who are bickering instead of working together. You can see how bad the situation in South Africa is, when people do not arrive safely to their destinations because someone decided they want to hurt someone else. (Change Lab #CL8)

Despite the above, by the end of this session, Change Lab #CL8, participants relationality and solidarity improved by acknowledging that it would be more beneficial for the group members to collaborate and genuinely work together than against each other:

Woman: Please, those who have not received anything must be patient. Don't talk badly about people and don't think bad thoughts. We will get something in the coming years, don't worry. We are embarrassing ourselves by behaving this way. We need to trust God that he will deliver what we have asked for. Please guys. (Change Lab #CL8)

At this point in the process the resolution still remained as the external parties having to conduct the selection process based on the criteria outlined above. Once the water tanks arrived on site this decision progressed into involving five members of the committee in the household beneficiaries selection (Follow-up discussion #FD_June to August'18) and the overcoming of power struggles posed by some individuals, as previously alluded to, manifested on a fair and transparent selection and distribution of water storage tanks (Follow-up discussion #FD_Feb'18).

8.3.1.2 Finalise leadership structure and committee members with responsibilities (#SB2)

Establishment of group committees:

In Change Laboratory workshop Six (#CL6) participants agreed to the list of committee members presented after further clarification on roles and responsibilities. The committees were finalised by Change Lab Eight (#CL8) on request to assist with the selection of the water tanks beneficiaries: *"Did you form committees? Yes, we formed one!"*

Appointment of group leadership:

Leadership was appointed during Change Lab Seven with confirmation thereafter. Interestingly leadership was split across representatives from the two participating villages, including the inclusion of young women for greater inclusion and representation. This was a significant shift as it diluted the original leadership decision-making power held by a single person since the informal formation of the group. There is also evidence that the group valued some form of leadership for group direction.

Research assistant: Okay ladies, let's not waste too much time chatting. I now want to know; do you think there should be 'groups' with specific people and a leader?

Group: Yes.

Research assistant: Why do you think that?

Woman: So that there is someone to direct us with activities and events that are happening. (Change Lab #CL7)

Woman1: We need to meet regularly and have a leader to say when we should gather.

Researcher: How will you choose the leader?

Woman2: Mrs Ndabeni is always letting people in our area know of what's happening with us.

Woman3: And Mrs Samson in our area.

Research assistant: [To researcher] There are three people that they've put forward. Down here it's Gertrude, in the other area it's Nolundi and then there's Mrs Samson. So those three nodes. (Change Lab #CL7)

Also there was agreement to change location moving away from usual meeting place at the initial group leader:

Research assistant: So the next point is on how you conduct things in the group. And how often do you meet during the year, do you meet as Tyityana and Qhoboshendlini together or separately? Things like that...

Woman: Mrs Samson. I don't want for us to separate. I think it will be best if we stick together. When a group is a group, it can't have separate meetings for Tyityana and Qhoboshendlini. We are using Nolundi's place at the moment, and we should continue to do so. The people from Qhoboshendlini can come up to Tyityana.

Research assistant: So how many times do you meet? And what do other people think? ... Where will you meet and how often will you meet as a group?

Woman: The chairperson will help us decide where we meet.

Research assistant: Okay. So, what will you meet about?

Woman: Maybe to decide how we will plant, what we will plant. We could meet after we've harvested maybe and help each other by planning what to plant in the new season and when to start planting.

Young woman: I think that as farmers, we need to meet regularly to ensure that our produce is healthy or is doing well. We need to meet and show each other which of the produce is healthy and ready to be sold, how we will sell it and where we will sell it. (Change Lab #CL7)

Tension relating to the appointment of a group leader arose and the need for more transparency:

Group leader: So, as a group we need to help each other out and include each other, like these new ladies sitting behind me. We need to speak as one voice and going forward, our meetings will be at Nolundi's place. If you decide to do your own small meetings, we will ruin this whole thing. Don't have secret meetings. Ask me, Mrs Ndabeni please can you ask the people at the nursery to give us seedlings, we are struggling. I will do that. But don't have your own organisations on the side please. (Change Lab #CL8)

8.3.1.3 Strengthening Operational Functioning (#B3)

The data shows that the main reason why the group took the initiative to come together was to mainly to discuss matters associated with the introduction of material stimuli or inputs. For instance, the group met on 10 September, the day before Change Lab Seven, to finalise the group's register required for the tree planning/swale making activity (Change Lab #CL7). After this workshop the group did not gather again outside the Change Labs until the new set of material stimuli came into play, the water storage infrastructure, after Change Lab Eight (#CL8). However between Change Lab #CL7 and Change Lab #CL8 the members of the group continued with their home-based agricultural activity, purchasing seedlings, etc. as well as meeting in small groups to support each other – peer-to-peer knowledge sharing (Section 7.4.3.4) (Follow-up discussion, #FD_13/04/18).

Group leader: ... On the matter of not calling for a meeting, I didn't call for a meeting because I was waiting for all of us to finish with our ploughing duties. Secondly, I was busy going around Port St Johns looking for help for our group and getting our papers together. The reason I couldn't make photocopies of our documents is because I was expecting more people to join us and was waiting for that. ... She is right in saying that we couldn't meet because we were so busy with other things, including the planting of our trees, trying to keep goats out of our gardens and all of that. Even though we have fences around our gardens, some of the goats jump over or get through somehow. (Change Lab #CL8)

Evidence can be found in the group's commissive action with regard to meeting as a group to discuss the formalisation of the group, that is, the finalisation of their constitution and beneficiary list necessary for mobilising the water tank subsidy (Change Lab #CL8):

Man: The most important thing is setting a date to meet so that we're able to move forward. To be honest, the only thing that was holding us back was the fact that the trees demand our attention and summer is nearby. So now, everyone was making sure they were collecting water and preparing for and tending to their trees.

Research assistant: And a date?

Group leader: Let's set a date everyone.

Research assistant: Are you tired and not going to set a date? What are you going to do?

Woman: We are still discussing.

Research assistant: You're still thinking? You're thinking about farming?

Woman: We are thinking of setting it sometime next week because we will be receiving our grants.

Research assistant: Oh, you're thinking of choosing a suitable day around that. Grants are coming on Monday.

Group: [Discussion]

Research assistant: So maybe let's set it for the week after the grants are received because most people will be busy getting groceries and other errands.

Group: Yes. We should set it for after all of that.

Research assistant: Sure. So which date are you setting?

Woman: The Wednesday of the following week. The fourteenth.

Research assistant: The fourteenth. Okay. Valentine's Day.

Group: Yes.

Research assistant: Okay. (Change Lab #CL8)

Consequently the group met on the proposed date to finalise the group's constitution and criteria for selection of the water storage systems beneficiaries (Follow-up session #FS1).

8.3.1.4 Draft constitution as formalisation of the group (#SB4)

Despite the initial resistance (or slow collective action) by the group members to finalise their institutional constitution (Follow-up discussion #FD_01/12/17), this was eventually completed before the disbursement of the water storage systems. By Change Lab session Eight (#CL3) the group's constitution and terms of reference were drafted but needed further input. The document drew on an information booklet provided by the researcher on 'how to form a CMF' in previous interactions:

Research assistant: Okay, so for the constitution, we only got as far as choosing what some people will be responsible for. Do you want to keep those same people or pick new ones? Maybe re-do the whole thing or what do you say?

Woman: I think it's okay how we did it.

Research assistant: [To researcher] So the last time we met for the constitution and terms of references, I'm just asking them if we need to revisit and re-do the new one or if they are fine with the old one.

Researcher: Is there one?

Research assistant: The one you sent me. Because we sat down with the group.

Researcher: Oh okay, so that was it.

Research assistant: Yes.

Researcher: Is that done?

Research assistant: They say for now.

Researcher: Can you email me a copy of that? Of what it's evolved to? (Change Lab #CL8)

The formalisation process was a slow one due to the fact that members of the group found themselves occupied with other tasks as reflected in the excerpt below:

Woman: What I think the reason why we haven't formalised things is that maybe we got carried away on doing our work in our gardens and the rainwater harvesting. It just took over in terms of priorities and everyone focused on their own gardens. Without putting blame on anyone, I think that the chairperson should lead us and say when we should be meeting and discussing everything before we leave here today.

Group: She's hit it on the nail. (Change Lab #CL8)

However, during Change Lab #CL8 the group agreed and *committed* to meet to finalise the required documentation in order to be able to mobilise the water infrastructure subsidies offered by the local NGO. The group met as planned and the document was completed (Follow-up discussion #FD_08/08/18) – a copy of the Lutengele group constitution can be found in Appendix E).

8.3.2 Advancing the 'basic' capability learning pathway with mini-cycles: Knowledge and skills or human capacity

Section 2.6.3 in Chapter Two and Section 7.4.3 in Chapter Seven alluded to human capacity and their support thereof, as a capability input as well as a conversion factor for a person to advance other capabilities. This section presents the analysis of the two mini-cycles embedded in the Change Labs session Six and Seven as training workshops which assisted as inputs and stimuli for the expansion of the group's agricultural practices via the realisation of the proposed strategic actions and thus the expansion of *Capability Learning Pathway #E* and related sub-pathways.

The mini-cycles acted as conceptual tools or stimuli for the improvement of participant's cognitive development and practices on rainwater harvesting and water and soil conservation, as well as *auxiliary stimuli* for other capabilities to materialise into functionings (see Section 8.3.4.3 below). The mini-cycles or training workshops were facilitated by a local NGO with the assistance of the research interventionist and field assistant at the identified learning demonstration site (Section 7.4.3.2). The content of the training sessions derived from the modelling discussions held by the participants during Change Lab Four and Five (#CL4 and #CL5). The learning during these mini-cycles was supported by knowledge resources translated into isiXhosa as previously suggested by the participants (Section 7.4.3.3). The mini-cycles catalysed change and transformation in the expansion of the group's reconceptualisation of their agricultural activity in several aspects (Section 8.5). Firstly, the input into advancing the group and individual human capacity had a positive and direct repercussion on the group's sub-capabilities and enaction of designed strategic actions as far as #SE1 (training workshops), #SE2 (demonstration site) and #SE3 (knowledge resources) as illustrated in Figure 8.2 and Figure 8.4 above. In turn, the enhancement of these capabilities led to the participants' amplification of land use (#SD1) and soil fertility (#SD2) practices. The mini-cycles and change laboratory sessions themselves also provided the institutional space for participants to hold discussions and reflections on their activity and the planning of future tasks (#SB3), work on their membership, criteria and registration (#SB1) and leadership and committees selection (#SB2) thus fuelling forward the formalisations of the women's group.



Picture 8.1: WH&C methods facilitation at mini-cycle. From left to right clockwise: Swale demonstration; the use of stones to help retain swale mound; the use of trees and vetiver grass as soil retention below the swale; and the use of an A-frame to mark the contour line of a swale. (Pictures: Kerry Maclain)

8.3.3 Experimenting in the 'instrumental' Capability Learning Pathways with material *chathas*

The introduction of material inputs into the expansive learning process was found to have a catalytic and amplifying effect on the collective capability and transformative agency of the research participants to move from the abstract conception of their agricultural activity to their concrete expansion as manifested in their associated functionings as described in Section 8.5 below. These inputs acted as 'incentives' or *chathas* for the group to transition from dormant manifestations of transformative agency into consequential action and collective and individual volitionality. In this study, *chathas* are not mere material inputs or tools but resources that over the social-historical-political context of Lutengele evolved into deep valued assets critical for the realisation of the participants food production and well-being aspiration. They motivated subjects to take charge of their own activity by being able to control their own behaviour and change their external circumstances (Vykotsky, 1987) and adopt stimuli to catalyse collective and individual volitional action and will (see Section 8.3.4 below).

Research assistant: Okay. [To the group] So the next thing we're going to look at, Mr Sadina has already mentioned this, the things that we were given. What do you call it, chatha [incentives]? When you work and get something?

Group: Chatha.

Research assistant: So those trees, the ones you were given for chatha you understand that you wouldn't have been given them if you hadn't done the contours and dug holes for them. So, because you were given those chatha yemithi [incentives for the trees]. Was that useful to you? If you weren't given them, would you have done those contours?

Group: No, we wouldn't have.

Research assistant: So how important were the Chatha as an incentive?

Group: Very important!

Research assistant: [TRANSLATION].

Research assistant: [To the group] So do you think that ukuchatha should be part of everything that you are doing? How important is it to you?

Woman: It's important because it encourages us.

Research assistant: It encourages you?

Group: Yes. (Change Lab #CL8)

As previously indicated, *chathas* or incentives were introduced by the interventionist researcher and local NGO during Change Lab Six and Eight in the form of trees and plants as well as water storage systems or rain water tanks. Their introduction assisted the group participants to assign value and meaning to these resources or inputs and convert them into auxiliary stimuli for the group to collectively work towards the attainment of their group institutional formation. The *chathas* also had a transformative effect on other more instrumental capability learning pathways as depicted in Figure 8.3 and Figure 8.5 above and described in the sections that follow, Section 8.3.3.1 to Section 8.3.3.5.

8.3.3.1 Improving Land and Water practices (#SD1, #SD2 and #SD3 and #SC2).

The introduction of fruit trees and other plants and grasses such as vetiver grass catalysed the implementation of swales as a solution in water and land capability learning pathway #C and #D. It was up to the individual to make contours in order to access the offered plants and trees with

the intention to hold soil on the slopes and in the longer term, contribute to food security in the area.

8.3.3.2 Installation of Water Storage Infrastructure (#SC1).

The research participants reported that mobilisation and installation of rainwater tanks was the top short to medium-term solution priority to the improvement of water security in the Lutengele villages (Section 7.4.1.1). The provision of water infrastructure led to direct improvement of the group's water security capability as well as manifestations of their collective capability needed to mobilise these resources through the local NGO. Participants expressed contentment with the distribution of tanks based on the beneficiary criteria developed as outlined in Section 8.3.1.1.

8.3.3.3 Accessing Labour: Help each other when there is a need (#SG2).

The need for help and assistance was manifested in the modelling and examining stages of the expansive learning process (Section 7.4.5.1). This aspect critically emerged with the introduction of *Chathas* as labour was needed for the implantation of swales, tree planting and installation of tanks. The following extract indicates that the group worked together and members assisted each other in order to accomplish their tasks:

Man: With regards to the committee that handles complaints or issues, I will say that there were no complaints. The women planted their trees and went on with their work really well. Nobody cried for help. Everyone worked well and there were no complaints. (Change Lab #CL8)

Woman: I'd like to compliment the other ladies. I wasn't around when we had to plant [trees], and I had other ladies do that on my behalf. (Change Lab #CL8)

8.3.3.4 Financial capital as accessing micro-loans (#SH)

Despite the voluntary assistance that the trees/plants and water tank beneficiaries received from fellow members, the task at hand required the digging of swales entailing the employment of local general workers to carry out this task. The material *chathas* mobilised members to access micro-loans to cover the cost associated with the workers' remuneration and thus catalysing the accessing of financial capital capability of the group members:

Woman: Got loans to pay for digging contours and watering trees. Everyone we'd ask to help us in our gardens wanted to be paid for it. Some of the men would ask for beer. We had to get loans just to get someone to help dig in our gardens and fetch water to plant our trees. What was it called again? The loan company? Money Line I think it was.

Group leader: We didn't even know how to deal with getting an orange tree branch and growing it properly. Then they taught us how to use compost, mulching and all those methods. There is a lot we have to be thankful to these ladies for. They warned us

against using chemical fertilisers and today our produce is healthy. We got given trees for free. Not even the Department of Agriculture gave us trees for free. We really struggled to get water to help grow our plants.

Researcher: And how much did these loans cost?

Group leader: Some said R200 and some said R400.

Researcher: More or less, how many people did that? So half of the people or?

Research assistant: Maybe like eight per cent. (Change Lab #CL8)

8.3.3.5 Marketing and Sales aspirations increasing (#SI).

The improvement of marketing and sales capability was pointed out by the members as a capability that they needed to work on more intensively once their local productivity increased (Section 7.4.7). In any case, the improvement of the members' agricultural practices benefited from the introduction of the aforementioned chathas resulting in the improvement of localised market opportunities and income generated from their produce sales (see Section 8.5 below).

8.3.4 From decision-making to implementation of solutions with Chathas and Double Stimulation: Catalysing volitionality and transformation in the agricultural activity

The aim of this section, Section 8.3.4, is to examine and present the findings relating to the move from the collective and individual aspirations to their realisation in the sense of sustainable agricultural capability expansion with the method of double stimulation. The Lutengele women's group voiced their collective aspiration to becoming more productive food growers within the ambit of sustainability of their catchment or landscape (Section 6.4). Consequently, the group, as part of the formative research intervention, engaged in a social and expansive learning process which allowed participants to analyse and surface the contradictions inhibiting their aspirations and agricultural activity from expanding, including their evolution and historical-political roots (Section 6.7). As a result, and by means of double stimulation tools, both *First and Second Stimulus*, the group prioritised key capability learning pathways to collectively work on for the expansion of their agricultural activity and practices (Section 6.7). The capability learning pathways or innovative trajectories mapped out the potential solutions or sub-pathways for the group to pursue. This process was described in detail in Chapter Seven. The solutions were consolidated in a strategic plan with allocation of responsibilities and sub-committees to drive the modelled innovations (Text Box 7.2). In Chapter Eight, Section 8.3.1 to Section 8.3.3 I discussed the evolution of each co-defined capability learning pathway during the last stages of the

expansive learning process from Change Lab Six to Eight. These aligned primarily with the exploration and implementation of solutions and the unfolding of transformative agency from commissive manifestations to taking consequential action. In other words, the move from capabilities to functionings in the agricultural activity via collective agency, collective action and ultimately the making of collective capability, is important. The previous sections also alluded to the introduction of new external inputs in the collective learning process, in terms of both material (tree/plants and water storage systems) and conceptual (mini-cycles as practical WH&C training workshops) tools. As discussed, this new set of *second stimuli* enacted rapid transformations in the group's capability trajectory which also entailed the overcoming of a bumpy terrain filled with deep-rooted tensions and socio-culturally entrenched gerontocratic power gradients as depicted in Figure 8.4.

This section, Section 8.3.4, focuses on the learning process by taking a closer examination of the higher mental functionings pertaining to the group's decision-making and decision-implementing processes. The latter are the agentic move from the co-developed and modelled solutions to their implementation, both collectively and individually, by the uptake of an auxiliary motive that 'activates' the subjects to yield volitional actions and agency. In other words, the adoption of auxiliary stimulus and the conversion of such stimulus into an auxiliary motive or sign aimed to "take control of" and "break away of paralysing" situations. By drawing on the method of double stimulation I was able to track the amplifying effect that the new set of second stimulus had in making visible the externalisation of volitionality by looking for manifestations of transformative agency and change in practices, and in the long run, the *beings*, *doings* and *becomings* of the research participants (Section 8.5 below). As pointed out in Section 4.4.1, double stimulation is an important method to help *objectify*, or *externalise*, the inner psychological processes of the mind (Engeström, 2011, p. 604; and Sannino 2015b, p. 1; Haapasaari & Kerosuo, 2015, p. 41) and in this way be able to trace the higher mental processes triggered by the second stimuli adopted (Sannino, 2015b). As such, double stimulation is considered a principle of volition and will provide a good conceptual tool for the analysis and understanding of the emergence of human agency (Sannino, 2015b; Thorne, 2015) that is in motion and nurtured through mediation (Hopwood & Gottschalk, 2017) (Section 4.4.3).

The examination of the amplifying effect that the new material stimuli had on the move from the participants' aspirations and associated capabilities to their realisation or functionings (achieved capabilities) draws on Sannino's Vygotskian double stimulation model and Sannino and Laitinen's (2015) work. As noted above, the aim is to elucidate the subjects' psychological

function and examine human conduct by observing how the subjects use tools to resolve conflicted situations and thus support transformative agency. Sannino (2015b) described the double stimulation model as encompassing the two *Apparatus* depicted in Figure 8.6 below. *Apparatus 1* consists of the formation of the decision to act by means of auxiliary motive (ibid., p. 9) and *Apparatus 2* corresponds to the implementation of the decision formed in apparatus 1. Here, the decision may be implemented as if one would be following instructions to act, these instructions purposely being created by the subject himself or herself. Apparatus 1 consists of four phases. Phase 1 is when the subject is confronted with *conflicting stimuli* (person is at the “mercy of the environment”). Phase 2 refers to a *conflict of motives* faced by the person, this is when conflicting stimuli activates motives which are conflicting with one another. In the ‘waiting experiment’ Sannino and Laitinen (2015) explained the subject’s conflict of motives as the tension between leaving and staying in the room in which the experiment was taking place (see Section 4.4.1). In Phase 3 the subject selects a stimulus and converts it into an *auxiliary motive* (or sign) aimed at overcoming the conflict. Examples of auxiliary motive, such as in the ‘waiting experiment’, the subject resourced to a clock, which in turn acquired the significance and meaning of an auxiliary stimulus by the subject forming the decision to leave the room when the clock struck a certain time. Here the person used the power of things or stimuli to control his or her behavior or rather to make a decision. The adoption of an auxiliary motive is an important stage. In Phase 4, the person establishes a connection between the decided reaction and the direct appearance of the auxiliary stimulus (e.g. clock showing agreed time). This phase is illustrated as 4a in Figure 8.5 as “the real or actual conflict” of stimuli. It is a critical stage in the formation of the voluntary action as the real stimuli or sign takes place. Phase 4b is the closure of the connection between the given stimuli and the reaction, which consolidates the decision to be subsequently followed in Apparatus 2.

In experimenting the double stimulation model with collectives, Sannino (2016) found that the uptake of Phase 3 and subsequent phases was rare. The collective set up obstructed individual attempts to overcome conflicts of motives and engaging with second stimuli: “Despite the efforts in all collectives [experiments] to find common ground in the conversation, the participants remained ambivalent and disconnected in their attempts at dealing with the situation and the related conflict of motives” (Sannino, 2016, p.171). Although Sannino in her study on human conduct in collectives does not present conclusive statements on the psychological dynamics at play in this type of waiting experiment, she indicated that social interaction and life experiences might obstruct double stimulation in collectives (ibid.). In this study I examined the social

interactions and context (e.g. power dynamics, poverty) of a collective activity that at first glance may appear to be constituted of participants or actors with homogeneous backgrounds and life experiences (a women's group). However, a deeper examination revealed that relational differences did exist. The relational obstructions that surfaced from the social learning process to double stimulation and change in activity have been taken into account and described as part of this study.

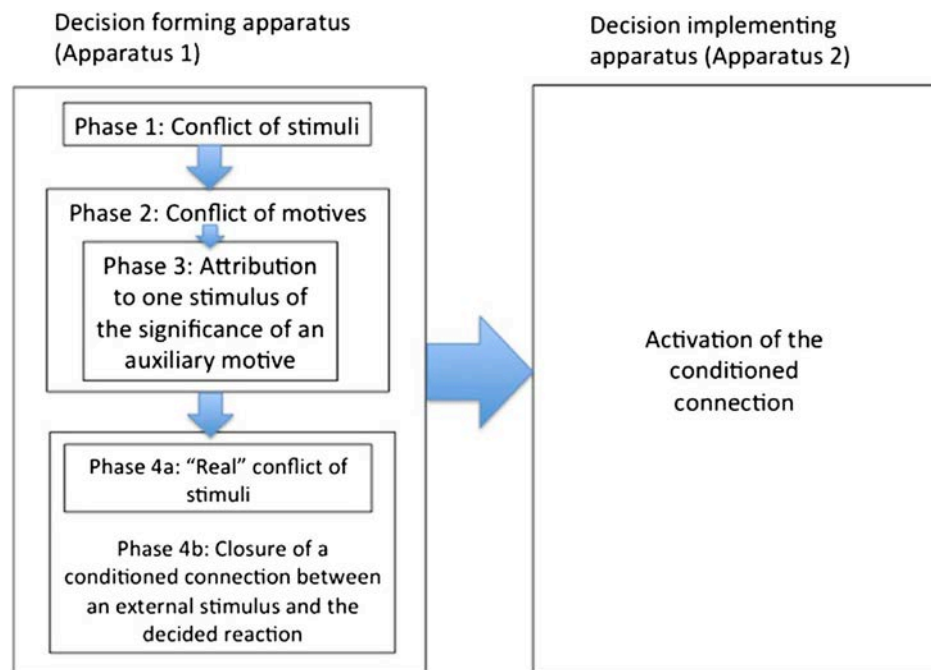


Figure 8.6: The double stimulation model of the emergence of volitional action (Sannino, 2015b, based on Vygotsky's (1997) text on self-control)

The following sections present an analysis conforming to the double stimulation model Apparatus 1 Phase 3 and Phase 4 as well as Apparatus 2. The data was generated in the Change Labs Six to Eight as well as with other data gathering methods interwoven along the last stages of the expansive learning process corresponding to these Change Labs (e.g. follow up discussions, mini-cycle reports, observations and individual interviews). The analysis is centred on the catalysing effect that the new material stimuli had on the transformative stages of the *Capability Learning Pathways* #B, #C, #D and #E; with implications on other pathways. In applying the model, Hopwood and Gottschalk (2017) noted that while the model offers conceptual clarity, identifying the manifestations of its features in empirical data is not straightforward. Similarly, Sannino and Laitinen (2015) and Jalasi (2018) also found that in their studies, some stages of the model were not easily observable, especially Phase 4a and 4b and therefore their occurrence

was inferred, as it is the case in this study. However, where possible, evidence is provided as reported by the participants and presented in Section 8.3.1 to Section 8.3.4 above.

Phase 1 (conflict of stimuli) and Phase 2 (conflict of motives) in Apparatus 1 have been discussed in detail in Chapter Six and Chapter Seven. However, for each pathway examined, I have provided a brief summary table outlining the *conflict of stimuli* as the problem itself or capabilities with contradictions which in turn triggered *conflict of motives* among the research participants. The summary tables also indicate the solutions co-generated by the participants for each capability-conflict of motives as a result of preceding double stimulation process mediated by the interventionist researcher and assistant with the use of various *Second Stimuli* or tools (e.g. capabilities ranking task described in Chapter Seven). As pointed out, the following sections are dedicated to the analysis of double stimulation in the last stages of the double stimulation model which also correspond, in the case of this study, to the last stages of the expansive learning cycle – implementation and reflections of solutions.

8.3.4.1 Strengthening foundational capability expansion or formalisation of the women's group with material inputs or Chathas in double stimulation (Capability Learning Pathway #B).

Apparatus 1: Decision forming

Contradictions #C0 and #C12 were presented as conflicting stimuli (Phase 1) to trigger conflict motives (Phase 2) in the earlier phases of expansive learning summarised in Table 8.1 that follows.

Table 8.1: Early stages of capability learning pathway: formation of a group (#B)

Capability pathway and problematic	Second Stimuli: Hypothesised Contradictions	Second Stimuli (mapping, ranking) as second layer of analysis of contradictions	Sub-pathways with solutions	Co-design of Auxiliary Stimuli and early transformative agency
<i>Apparatus 1: Phase 1 Conflict of stimuli</i>	<i>Apparatus 1: Phase 2 Conflict of motives</i>	<i>Apparatus 1: Phase 2 Deepening conflict of motives</i>		
#B: Foundational/ institutional capability of forming a group	#C0: Food insecurity despite availability of productive resources #C12: Inadequate leadership to promote development	Initial resistance on spatial scope and stakeholder reach. Exacerbated with double bind, aggravation and frustration when intersected with #C2 and #C3 water infrastructure and services	#SB1: Membership, criteria and registration #SB2: Leadership and Committees #SB3: Operational #SB4: Constitution and ToR [leading to #SC4 establish CMF as long-term]	Germ cell abstraction as idea of forming a group to break away from inefficient dependencies and gain collective power and reframing purpose of group as the power of collectiveness and turning gaze inwards Strategic actions with responsibilities as new stimuli (anchor II) From resistance to commissive agentic talk

With the introduction of external stimuli in the form of trees as incentives for the implementation of swales at household level, the formation or consolidation of the women's group started to take shape from Change Lab Six onwards. This was further catalysed when the water storage systems were introduced during Change Lab Eight.

Apparatus 1 - Decision forming Phase 3 (Auxiliary motive): The trees and water tanks or *Chathas* were turned by the women's group into an auxiliary motive (or sign) to make steps towards their own self-empowerment, give impetus to their institutional organisation and unlock collective capability necessary for the mobilisation of these agricultural inputs or resources. The navigation of power relations, as pointed out earlier, also came into play. Details from decision forming to decision implementation during the transformative phase are described in Section 8.3.1 above and depicted in Figure 8.2 and Figure 8.4.

This capability learning pathway has four sub-pathways: 1) register, formalising membership and beneficiary criteria (#SB1); 2) establishing leadership and committees (#SB2); 3) operationalisation (#SB3); and 4) developing constitution and terms of reference (#SB4).

Registration (#SB1)

Apparatus 1 - Phase 4a and Phase 4b: The *real conflict of stimuli* and *closure* of conditioned connection between the trees and plants as external inputs and the decision of taking action towards the drafting of a group's registration list commenced after the local NGO introduced the incentive in Change Lab Six. The connection to a time-frame for the submission of a register became the actual conflict of stimuli (4a) which led to closure and consolidation of decision (4b) and consequently to decision implementation as a draft register. The participants assigned a higher level of auxiliary motive to the second external input or stimuli, the water storage systems, which led participants to a more complex consolidation of a register. In this process, the real conflict of stimuli (4a) and closure (4b) became the commitment that the external parties made to 'tanks are arriving and we need a final register' during and after Change Lab Eight.

Apparatus 2 - Decision implemented: A register was firstly drafted for the swale/tree-planting phase, reviewed and finalised prior to the selection and disbursement of the water storage systems. Evidence can be found in *Appendix E*.

Membership criteria (#SB1)

Apparatus 1 - Phase 4a and Phase 4b: The *actual conflict of stimuli* and *closure* of conditioned connection between the trees and water tanks as external inputs and the decision of taking action towards the consolidation of membership criteria commenced after Change Lab Six (#CL6). The 'requirement' to draw up a register for the disbursement of trees and water tanks (4a and 4b) led to participants to firstly examine and deliberate criteria and membership status, and later agree on criteria as "everyone is welcome" with interest in food production.

Confronting and navigating power relations: Tensions within the group in Change Lab Eight (#CL8) were aroused and resolved (Section 8.3.1).

Apparatus 2 - Decision implemented: Through decision implementation, participants took consequential action in terms of agreeing on membership criteria and membership status.

Selection of beneficiaries and criteria for selection (#SB1)

Apparatus 1 - Phase 4a and Phase 4b: The *actual conflict of stimuli* and *closure* of conditioned connection between the trees and water tanks as external inputs and the decision to take action towards the consolidation of a beneficiary criteria and selection process commenced after Change Lab Six (#CL6) when the trees were introduced and further catalysed as the water systems came into play. The move to decision making as real actual conflict of stimuli and closure (4a and 4b) undertook some resistance as expressed by the participants in Change Lab Eight (#CL8) when discussing the selection of water tank beneficiaries (Section 8.3.1). This was eventually adopted by the participants when the connection between accessing water tanks and the “idea of fairness” in the selection was realised as well as the prerequisite by the NGO to have access to co-developed criteria and a list of beneficiaries before the tanks arrived on site. The “arrival of tanks” to site acted as real conflict of stimuli for five members of the sub-committees to get involved in the selection process alongside with representatives from the local NGO.

Confronting and navigating power relations and resistance: These tensions were amplified when the second material input, water storage systems, were introduced in Change Lab Eight (#CL8). The introduction of the proposal for installation of tanks created the highest tension in the process. The resistance to this process continued and was echoed by other participants who indicated that choosing beneficiaries could create physical conflicts and even put people at risk of not being considered. Young members or *makotis* indicated that they should also be considered on equal terms. (Section 8.3.1 and Section 8.4)

Apparatus 2 - Decision implemented: Criteria and process for selection was co-designed by the participants after Change Lab Eight. Once the water tanks arrived on site this decision progressed into involving five members of the committee in the household beneficiaries selection (Follow-up discussion #FD_June to August 2018).

Establishment of group committees (#SB2)

Apparatus 1 - Phase 4a and Phase 4b: The *real or actual conflict of stimuli* and *closure* of conditioned connection between the trees and water tanks as external inputs and the decision to take action towards the consolidation of selection and appointment of group sub-committees assigned to drive the strategic plans co-developed by the group during Change Lab Five, lay on the internal drive for the group to “take charge of their own destiny”. The real actual conflict of stimuli and closure (4a and 4b) commenced in Change Lab Five with some traces to Change Lab Three. More concrete manifestation of commissive agency can be found firstly in the Follow up Meeting One (Section 8.2) and later in Change Lab Seven (Section 8.3.1.2).

Apparatus 2 - Decision implemented: In Change Laboratory workshop Six (#CL6), participants agreed to the list of committee members presented after further clarification on roles and responsibilities.

Appointment of group leadership (#SB2)

Apparatus 1 - Phase 4a and Phase 4b: The *real conflict of stimuli* and *closure* of conditioned connection between the trees and water tanks as external inputs and the decision of take action towards the consolidation of the appointment of group leadership commenced in Change Lab Seven (#CL7). Participants' expressed that leadership would guide them to progress with the activity. The conception of "leadership" itself became the real conflict of stimuli and closure (4a and 4b) among the group members (Section 8.3.1.2)

Confronting and navigating power relations: Tension relating to the appointment of group leadership arose and need for more transparency (Section 8.3.1.2)

Apparatus 2 - Decision implemented: Leadership was appointed during Change Lab Seven (Section 8.3.1.2)

Strengthening Operational Functioning (#B3)

Apparatus 1 - Phase 4a and Phase 4b: The *actual conflict of stimuli* and *closure* of conditioned connection between the trees and water tanks as external inputs and the decision of taking action towards the consolidation of becoming operational in the sense of holding group meetings to realise the strategies was taken up by the group participants "when there is something happening". This refers to the coming together to discuss matters associated with the introduction of inputs or trees and water tanks. For instance, as reported in Section 8.3.1.3 above, the group met on 10 September 2017, the day before Change Lab Seven, to finalise the group's register required for the tree planning/swale making activity. The group did not gather again outside the Change Labs until the new set of material stimuli came into play, the water storage infrastructure, after Change Lab Eight.

Apparatus 2 - Decision implemented: The group met before Change Lab Seven, to finalise the group's register required for the tree planning/swale making task and again when the new set of material stimuli came into play, the water storage infrastructure, after Change Lab Eight.

Draft constitution as formalisation of the group (#SB4)

Apparatus 1 - Phase 4a and Phase 4b: The *real actual conflict of stimuli* and *closure* of conditioned connection between the trees and water tanks as external inputs and the decision to take action towards the drafting of a constitution as formalisation of the group started in Change Lab Six with the realisation that a constitution would strengthen the group's case to mobilise resources. The connection between the water tank subsidy mobilisation and the constitution as proof of an organised entity led to decision implementation.

Apparatus 2 - Decision implemented: The group's constitution and terms of reference was semi completed by Change Lab session Eight and after Change Lab Eight *before the arrival of the water storage system*. The group agreed to meet on 14 February (Section 8.3.1.4)

The foundational capability as the formation of a group or institution had a 'germ cell' effect on other capabilities and notions of well-being and empowerment in the collective activity herewith investigated and further described in Section 8.3.5 below.

8.3.4.2 Amplifying WH&C practices with material inputs in double stimulation (Capability Learning Pathways #C, #D and #G)

Apparatus 1: Decision forming

Contradictions #C2 and #C3 were brought as conflicting stimuli (Phase 1) to trigger conflict motives (Phase 2) in the earlier phases of expansive learning summarised in Table 8.2 below. Section 8.3.3 above described the value that *Chathas* or "incentives" hold among participants. Water tanks were considered as a priority water infrastructure solution as reported in Chapter Seven (Section 7.4.1.1).

Table 8.2: Early stages of capability learning pathway: being water (#C) and land secured (#D)

Capability pathway and problematic	Second Stimuli: Hypothesised Contradictions	Second Stimuli (mapping, ranking) as second layer of analysis of contradictions	Sub-pathways with solutions	Co-design of Auxiliary Stimuli and early transformative agency
<i>Apparatus 1: Phase 1 Conflict of stimuli</i>	<i>Apparatus 1: Phase 2 Conflict of motives</i>	<i>Apparatus 1: Phase 2 Deepening conflict of motives</i>		
#C: Being water secured	#C2: Lack of water infrastructure #C3: Water insecurity	Conflict resolution led to #SC1. Initial double bind to #SC2 with additional focus on #SC3 and #SC4 as long term	#SC1: Infrastructure solutions (spring protection, water tanks, boreholes and water pumps) #SC2: Water Infrastructure Committee #SC3: WH&C practices #SC4: Establish CMF (long term)	Development of strategic actions From resistance to commissive agentic talk
#D: Being able to use land effectively and being land secured	#C4: Land utilization	Horizontal learning with some resistance to some soil conservation methods (contours or swales) with resolution reached as #SD3	#SD1: Maximising land use #SD2: Soil Fertility #SD3: Soil Conservation methods (erosion)	Development of strategic actions From resistance to commissive agentic talk

Apparatus 1 - Decision forming Phase 3 (Auxiliary motive): The trees and water tanks or *Chathas* were turned by the women's group into auxiliary motive (or sign) to make steps toward the implementation of WH&C and soil conservation practices as well as other capabilities and strategic implementations described in Section 8.3.3 above and depicted in Figure 8.2 and Figure 8.4. This water security capability learning pathway (#C) has four sub-pathways: 1) mobilisation of water infrastructure solution (#SC1); 2) establishing of water infrastructure committee (#SC2); 3) WH&C practices (#SC3); and 4) establishing CMF in the long term (#SC4). Additionally, the new stimuli also had an implementation effect in relation to the expansion of the land security capability learning pathway (#D) on the following sub-pathways or capabilities: 1) #SD1 maximising land use; 2) #SD2: Soil Fertility; and 3) #SD3: Soil Conservation methods (erosion).

Improving Land and Water practices (#SD1, #SD2 and #SD3 and #SC2)

Apparatus 1 - Phase 4a and Phase 4b: The *real conflict of stimuli* and *closure* of conditioned connection between the trees and water tanks as external inputs and the decision to take action

towards the implementation of soil conservation and water management practices was realised on “prospects of being compensated” (4a) with trees and plants (between Change Lab Six and Change Lab Eight) for the implementation of swales and with the “actual stimuli itself” once the tanks were installed leading to water harvesting practices. This phase occurred between Change Lab Eight and Change Lab Nine. It was up to the individual to make contours and the phase involved being compensated with trees (mainly fruit trees) as well as other plants to hold the soil on the slopes (Section 8.3.3.1).

Apparatus 2 - Decision implemented: The closure of decision led to implementation of WH&C and soil conservation practices via the application of appropriate methods (swales); the improvement of water security with the installation of rain tanks; and the establishment of a sub-committee with a focus on water infrastructure. Participants changed perspective on practices in Change Lab #CL9 with evidence from their reflections and feedback (Section 8.5). Additionally, as reported in Section 8.3.3.1 the group members drew on one another for assistance with tree-planting and installation of tanks.

Mobilisation of Water Storage Infrastructure (#SC1)

Apparatus 1 - Phase 4a and Phase 4b: The *real or actual conflict of stimuli* and *closure* of conditioned connection between the water tanks as external inputs and the decision towards the collective mobilisation of the water storage system subsidies offered by the NGO commenced during Change Lab Eight when the proposal was presented to the group (Section 8.3.3.2). “The tanks themselves” became the real actual conflict of stimuli and closure (4.a and 4.b) towards amplifying collective capability in the form of consolidating the group's constitution and ironing out beneficiary criteria and selection process as previously alluded to in Section 8.3.1 above.

Apparatus 2: Decision implemented: 84 000 litres of water storage capacity installed across 33 households (Section 8.5).

Accessing Labour: Help each other when there is a need (#SG2)

Apparatus 1 - Phase 4a and Phase 4b: The *actual conflict of stimuli* and *closure* of conditioned connection between the trees and water tanks as external inputs and the decision to take action towards mobilisation of assistance from fellow colleagues was evident prior to and on arrival of trees after Change Lab Six. Assistance was again accessed after Change Lab Eight in preparation for the installation of the water tanks (Section 7.4.5.1 and Section 8.3.3.3). “The need to prepare for arrival of materials” was taken up by participants as the real actual conflict of

stimuli. Closure of decision was manifested in both the digging of swales, trees and plants planted, and tanks installed in the households (decision implemented in Apparatus 2) – Section 8.5.

Financial capital as accessing micro-loans (#H)

Apparatus 1 - Phase 4a and Phase 4b: The *real conflict of stimuli* and *closure* of conditioned connection between the trees as external inputs and the decision to take action towards accessing micro-loans for payment of extra labour to dig swales fell on the condition posed by the NGO as the “10 metre requirement of swale to one tree” (Section 7.4.6 and Section 8.3.3.4).

Apparatus 2: Decision implemented: Participants accessed loans for the amount of R200 to R400 from a local micro-financing institution.

Marketing and Sales increasing (#I)

Apparatus 1 - Phase 4a and Phase 4b: The improved WH&C practices activated by the intervention through the mobilisation of trees and water tanks, as well as the mini-cycles or training workshops (see Section below), among others, led to the uptake and escalation of vegetable production in the Lutengele villages (Section 8.5) and thus the expansion of the group's access to local market capability. This expansion lay in the ability of producers to access local village markets which was catalysed by the uptake of “available produce” as auxiliary stimuli and “the days of monthly pension disbursement points” (*real actual conflict of stimuli* and *closure*) as opportunity days and places to trade (Section 7.4.7 and Section 8.3.3.5). As a result, members of the group took decisions on implementation (as reflected in the individual cases in *Appendix D* and Section 8.5 below).

8.3.4.3 Expanding the 'basic' capability learning pathway and cognitive development with mini-cycles in Change Labs

Apparatus 1: Decision forming

Contradictions #C5 and #C6 were mirrored back as conflicting stimuli (Phase 1) to trigger participants' conflict of motives (Phase 2) during the earlier phases of expansive learning summarised in Table 8.3 below and described in Section 8.3.2 above.

Table 8.3: Early stages of capability learning pathway: being water (#C) and land secured (#D)

Capability pathway and problematic <i>Apparatus 1: Phase 1 Conflict of stimuli</i>	Second Stimuli: Hypothesised Contradictions <i>Apparatus 1: Phase 2 Conflict of motives</i>	Second Stimuli (mapping, ranking) as second layer of analysis of contradictions <i>Apparatus 1: Phase 2 Deepening conflict of motives</i>	Sub-pathways with solutions	Co-design of Auxiliary Stimuli and early transformative agency
#E: Being knowledgeable and skilful for the pursuit of the envisioned agricultural practices (Basic or Human Capacity)	#C5: Loss of sustainable practices #C6: Inappropriate uptake of available internal and external extension support	Basic capability to support expansion of other capabilities	#SE1: Training Workshops #SE2: Experimentation (demonstration sites) #SE3: Access to knowledge resources #SE4: Peer-to-peer Knowledge sharing #SE5: Internal group learning #SE6: learning exchanges	Development of strategic actions From explicating to commissive agentic talk Break-away from learning routines and dependencies on external training workshops

With the introduction of external stimuli in the form of Mini-cycles and Change Labs for the improvement of the group's basic capability pertaining to the expansion of agricultural knowledge and skills commenced as early as Change Lab One when the workshops provided space for the co-construction of new knowledge. More formally, the mini-cycles embedded in the Change Lab Six and Seven (#CL6 and #CL7) in the form of practical workshops contributed to this expansion by influencing the effect on the activation of associated sub-capabilities as represented in Table 8.3 above, as well as other capabilities directly dependent of the type of human capacity being fostered in the workshops (e.g. WH&C practices) – see Figure 8.1 and Figure 8.3. Both the mini-cycles and workshops were initially designed by the researcher and later with the local NGO as events for the group members to not only co-develop solutions and strategies towards the advancement of their activity but also as opportunities for the co-production of new knowledge and the improvement of cognitive development and practical skills with regard to sustainable land use practices and agricultural development. These events in turn became second stimuli as adopted by the participants to drive the activity forward. Workshops, of any kind, were perceived as opportunities for the group to develop as they provided the opportunity to interact with outside agents considered as 'knowledge brokers' and 'trusted partners' (see Section 6.3.3). The workshops became the auxiliary motive for the group to deal with the conflict of motives and 'paralysing' situation – an event of hope. The real conflict of stimuli and closure of condition connection (Phase 4a and 4b) on this pathway #E occurred when 'the workshops took

place' which led to the actualisation and participants' attendance at training workshops (#SE1); the establishment of a learning demonstration site and experimentation by the participants, researcher and NGO and members (#SE2); as well as participants accessing knowledge resources translated in the local language (#SE3). Additionally, the mini-cycles or workshops added value to the participants' improvement of cognitive and practical development (#SD1, #SD2 and #SD3 and #SC2) as manifested in their household food gardens (Section 8.5). Additionally, the cognitive and practical development pertaining to the small-scale agricultural production capability expansion also had a knock-on effect on other activity outputs such as entering the local market place and income generation as well as an improvement on the sustainability orientation of the practices. The events themselves also proved to be suitable platforms for the group to strengthen their operational capability as a group or institution.

8.3.4.4 Other solutions implemented deriving from the analysis of contradictions and conflict of motives

The acquisition of auxiliary stimuli as auxiliary motives included temporal and spatial stimuli such as "when I go to town" or "when is the right time to harvest [seeds]" for individual actors to make the leap towards volitional action relating to the mobilisation of donations and the initiation of a seed bank respectively.

Conclusions from the empirical analysis of Sannino's double stimulation model experiment conducted in this study:

- The implementation of collective decisions in this study were analysed as decisions that led to collective capability. These are, as per definition in Chapter Three (Section 3.5.2), capabilities that an individual alone may not attain and were the result of a collective endeavor. An example of collective capability included the mobilisation of the water storage tanks that required the drafting of the group institutional constitution and terms of reference co-developed by the research participants. In this sense, double stimulation was attained by the group adoption of material inputs in the collective and turned into an auxiliary motive driving the collective decision-making process into implementation by establishing the connection between the drafting of a constitution and the direct appearance of the auxiliary stimulus as "for the arrival of water tanks" (Section 8.3.4.1).
- Decision implementation is an important step in double stimulation towards the achievement of aspirations and expansion of capability as functionings in activity.

Without decision implementation in Apparatus 2 or agency, capabilities or freedoms are reduced to mere wishes or aspirations. However, through a capability lens, 'inaction' may also be a manifestation of freedom and volitionality not to act.

- The turning of capabilities into functionings (or the acting on decisions) with double stimulation required at times overcoming of power struggles and relational dynamics constituted in the life activity of the participants. The material inputs did not only surface new and old tensions but also assisted to catalyse collective action and capability as these were stimuli with deep-rooted socio-cultural and economic value in the advancement of the subjects' agricultural activity and wellbeing (e.g. water storage tanks). The participants navigated power dynamics in the formulation of decision, and later in the implementation of decisions, in the workshops as these opened up opportunity for voice especially for the younger generation of women attending the sessions. A sense of fairness and solidarity evolved as people were seeking shared benefits across all members of the group and the overcoming of their historical-political situation.
- The attainment of capabilities (or capability bundles) in double stimulation in collectives led to the realisation of other capabilities. The process had a generative effect fuelled by, for instance, the formalisation of the women's group as a foundational capability to lead development in the learning process. For instance, the mobilisation of the water storage systems by the group's efforts led to the enhancement of household WH&C practices and in turn to the increase of household income from produce sales.
- Aspirations pushed forward collective decision implementation in double stimulation. The data presents a correlation between the auxiliary motive (water tanks) and the object-motive (increased food production). Auxiliary motives (trees and tanks) were considered as critical inputs for the agricultural activity and the working towards collective and individual aspirations. Double stimulation in this regard also had an empowering result on both individuals' bargaining power and 'collectiveness' or a sense of solidarity among group members (see Section 8.5).
- The participants' value on the material inputs introduced by the formative interventionist in the mediation of double stimulation influenced the selection of these as auxiliary motives in the learning process, catalysing for rapid change and transformation in the collective activity. These influenced the decision-making and decision implementation as manifested in volitional action. In this case, the

interventionist researcher can 'manipulate' the learning structure in order to trigger (but not produce) the participants' construction of their actions in these processes (Van der Veer and Valsiner 1991 cited in Sannino, 2016, p. 171), firstly, by introducing catalytic stimuli, and secondly, by suggesting, for instance, the spatial or temporal rules or the actual conflict of stimuli.

8.3.5 *Germ cell* generation in the Lutengele sustainable food production activity

The concept of a *germ cell* in the dialectical movement of ascending from the *abstract* (the world as it presents itself to us) to the *concrete* (the reconstituted and now understood whole) in expansive learning and formative research interventions was previously introduced in Section 4.5 as a unit of opposites that has to be discovered or abstracted by the learners or participants in the process of attaining a rich reconceptualisation of object of activity (Sannino, et al., 2016). In this study the idea of an '*iqumrhu*' or formation of a group was surfaced as a germ cell during the early stages of the expansive learning process as a self-empowering entity to drive learning and development. During Change Lab session Three (Section 7.3), the germ cell was generated in a very rudimentary form and as a potential concept when discussing the break away from external agencies as the only conduct for participants to achieve development and expand the agricultural activity herewith presented. At this stage, the germ cell was abstracted by the research participants from the preliminary analysis of the foundational contradiction found in the activity of study, being this *Contradiction #C0* (Food insecurity despite availability of productive resources) and further reinforced by contradiction *#C12* (inadequate leadership to promote development). The germ cell thereafter gained impetus with the modelling of proposed solutions deliberated and examined during Change Lab Four and Five as participants and researchers took a turn to focus 'inwards' (and strengthen the institutional capability of the women's group) in order to expand outwards (Section 7.3.2). In saying this, the germ cell carried a deep-seated conflict of motives or unit of opposites between the forging of individual gain and thus individual action dependent on external parties and the collective or Common Good quest through collective action and agency as explained by Engeström, Sannino and Virkkunen (2014, p. 122) as follows:

Germ cell abstraction captures the smallest and simplest, genetically primary unit of the whole under functionally interconnected system under scrutiny – grasping the essence of an object by tracing and reproducing theoretically the logic of its development of its historical formation through the emergence and resolution of its inner contradictions.

The abstraction and discovery of the germ cell in this process encapsulated the need to grapple with the ethical-political dimension found in the object of activity revealed not only from the genetic analysis of the object, but the participants' lived experiences in a context of deep structural poverty and social-ecological injustice found in the contemporary welfarist and capitalist trajectory to development. As Sannino et al. (2016, pp. 602-603) explained, "an object carries in itself the pervasive contradictions of its given socioeconomic formation. In capitalism any object is at least potentially a contradictory unit of use value and exchange value". The germ cell also related to the tension pertaining to the foundational contradiction of the activity, this being the pull between having local productive resources in abundance and yet participants not being able to access these resources as a result of, as pointed out, the long socio-political and historically structural constraints affecting rural South Africa.

The germ cell, or conception of a group or *Iqumrhu*, gained more impetus when the group, through double stimulation mediation, encountered a 'double bind' as the blockage to mobilise water infrastructure (described in detail in Section 7.3) which led, through the charting of the ZPD, to the formulation of proposed solutions and strategies to overcome this barrier as well as the formulation of the Second Stimuli as a strategic plan with responsibilities derived from the second layer of analysis of the contradictions surfaced during Phase One of the study (Section 6.7). The germ cell therefore became the foundational capability learning pathway as previously presented and discussed in Sections 6.7 to drive learning and development and therefore the move from the *abstract* to the *concrete*.

Evidence of the germ cell abstraction in this study became more apparent in Change Lab sessions Seven and Eight with the change of discourse presented by the participants in relation to the value of forming or formalising their women farmers group. The dialogical analysis of the data confirmed that the participants firstly perceived the group as a knowledge sharing and support system or platform, which evolved into a group as an institution with the aim to drive change towards their collective goals and vision:

Woman: I think that a group is a support system. If I don't know something, I can rely on the group members to help me out.

Group: It's knowledge and information. (Change Lab Workshop 7)

Woman: Another thing I think would help strengthen us as a group would be for each of us to know exactly what we're doing with our gardens. We can't neglect our gardens

because there are no workshops going on and only revive them when they start running them again.

Researcher: It's true! I mean, what if we don't come back? What will these people have? What does that group come together for? Not because we're here. If we're not here, do they come together?

Woman: It's important that we keep things going and work towards our goal. (Change Lab Workshop 7)

As alluded to above, the germ cell abstraction took place during the earlier stages of the expansive learning process with the help of double stimulation stemming from the analysis of contradictions, to the triggering of conflict of motives, to the charting of the ZPD (Sannino & Engeström, 2017), which ended in the co-production of modelled strategies and solutions for the group's capability to expand towards a more sustainable and productive agricultural activity. However, along the last stages of the learning process (Change Lab Six to Eight, decision forming and decision implementation), the germ cell was nurtured with the introduction of material inputs or stimuli in double stimulation mediation which acted as 'food' for the germination of the cell. The previous sections, Section 8.3.1, described the catalytic and transformative effect that the new material stimuli or *Chathas* had on the formalisation of the group as an operational entity to action the proposed solutions and the enacting of systemic capability learning pathways. In this sense, the germ cell performed a generative function in the expansion of the participants' capability that entailed the reconfiguration of activity, the reconceptualisation of its object-motive and the navigation of relational dynamics (Section 8.5).

8.4 Shifting gerontocratic power dynamics throughout the Change Labs

Gerontocratic authority, and thus issues of relational power, surfaced among women during the interventionist workshops. Gerontocracy, as pointed out in Section 6.2.11, refers to the authority and rights reproduced and recreated by intergenerational and gendered relations determined by age and marital status in a social system. These created differences in status, voice and power among the women participating in this research and learning process. As such, the overcoming and navigational capacity of the affected participants came into play during the engagement or Change Labs as illustrated in Figure 8.4 above. The most prominent relational tensions of this nature arose during the modelling of solutions and implementation phases of the expansive learning process indicated in Section 8.2 and especially with the introduction of external inputs such as trees and water tanks described in Section 8.3. Examples of these include the

consolidation of the group constitution, shifting and distributing the decision-making power and leadership between the young *makotis* and older members of the group (#SB2) during Change Lab session Six (Section 8.3.1.2). Additionally, young women were included as potential beneficiaries of agricultural inputs and were not sidelined in the selection process (#SB1 and #SB4) – Section 8.2.1.1 and Section 8.3.4.1. Furthermore, a resolution, provoked by the tensions around the role of the *makotis* in relation to providing help and assistant to other women, was reached. The group agreed to draw on young women as advisers and assistants instead of expecting 'hard labour' from these women (#SG2):

Woman1: I think that to make this easy, we should have the makotis taking care of the elderly women.

Woman2: I work in pain because my legs no longer work well. I have to do most of the work on my knees. Things are going good, but I do think that the younger women should help the older women in their gardens.

Woman3: I think that what is being suggested here is sensible. First of all, as farmers we are not all of the same age and ability. As you can see, I am old. But you shouldn't feel joy when you see another farmer falling over. For example, I was injured when planting my trees. I fell on my side and hurt my arm. But I still have the heart and desire to work in my garden. We should use each other more in this group. We have phones, we should use them to communicate. I have skills and others have skills. For example, I did training in fencing and can fence the garden. I've helped some people in the group and people don't say when they need help. Please guys, say when you need help and make sure you're asking a specific person, not just anybody. Thank you.

Woman4: I'm not sure if I'm interpreting 'help and assistance' in the way I should be. The way I saw it, when others don't know how to do things, then the makoti should come and show me what I am doing wrong and also give me tips. Instead of me getting help from another old woman who has the same bad bones as me. Even though I would be seen as a young makoti, I also have back pains. So we should exclude labour and only have 'help and assistance' for advice and that sort of thing. (Change Lab #CL8)

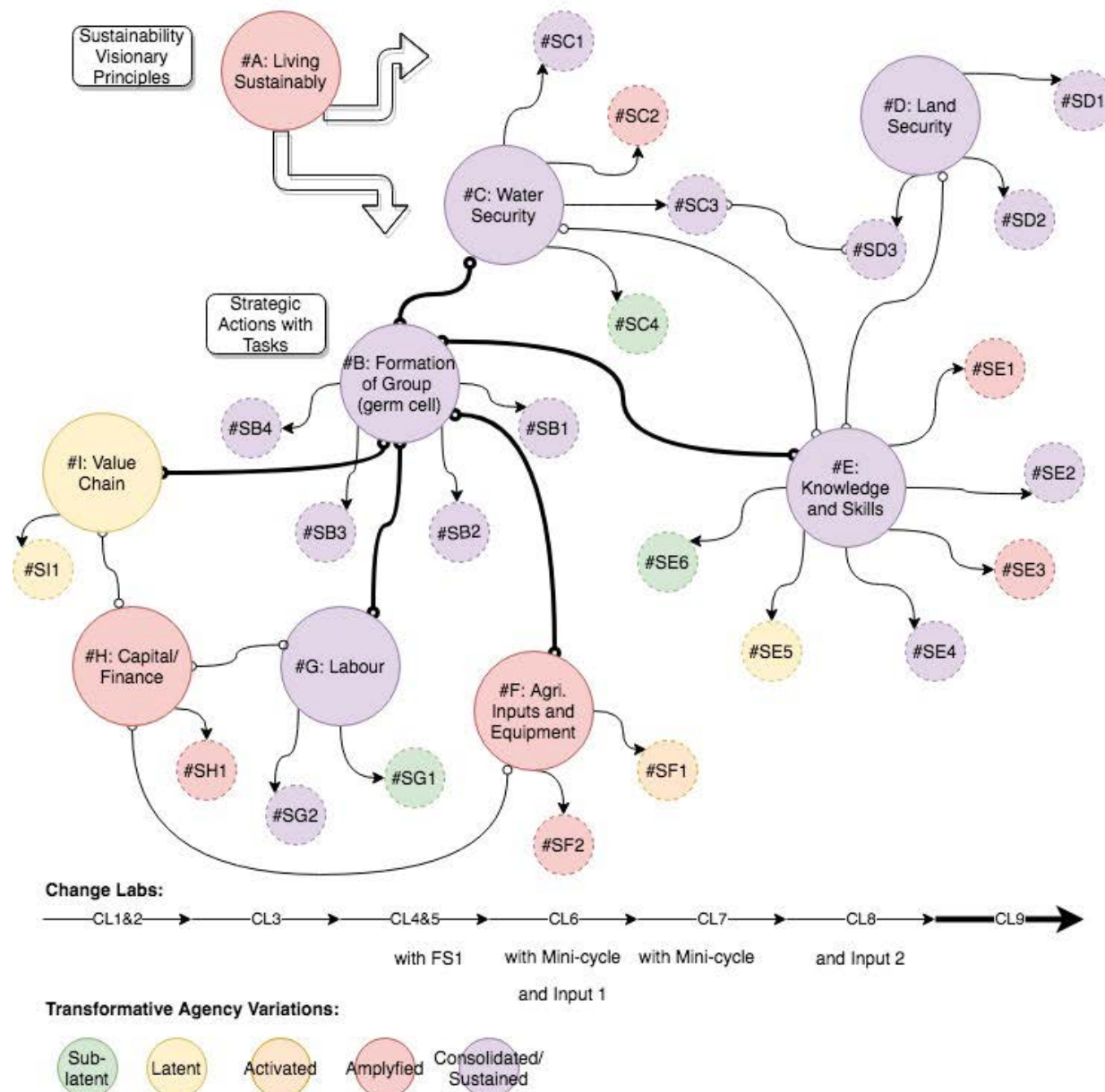
The interventionist workshops opened up the space for participants to navigate and confront power dynamics and tensions in the formulation of decisions, and later in the implementation of these decisions; in other words, new possibilities of fairness, more equitable distribution of resources and ultimately a sense of self-empowerment emerged out of their collective effort.

Final reflection and consolidating stages of the expansive learning process

8.5 (Re)-conceptualisation of the Lutengele Women's group sustainable livelihoods and empowerment: Expansion of sustainable food production capability

This section, Section 8.5, presents the data generated from the last Change Lab session Nine (#CL9) conducted on 26 September 2018, held almost eight months after the previous session. The workshop provided an opportunity for research participants to reflect on the implementation of the solutions modelled to deal with the contradictions outlined in Section 6.7 and the associated capability learning pathways. The discussions revealed that new practices and capabilities were enhanced and some consolidated forming the seventh and last step of the expansive learning process. Participants were also given an opportunity to reflect on their vision for the catchment by reflecting against the visionary principles developed during the early stages of the learning process in Change Lab One and Two. The section also draws on data generated from the reflexive interviews with the ten core members, observations and field reports. The evolution and unfolding of the capability learning pathways towards expansion of sustainable agricultural activity in the Lutengele landscape was carefully described in Chapter Seven and in the previous sections in this chapter, Section 8.2 to 8.4 and illustrated in Figure 8.1 to 8.4. The final consolidating stage of the process, and thus the level of capability expansion, is depicted in Figure 8.7 below and further described with examples in the text that follows, seeking to answer the research question:

Can expansive social learning processes shape conversion factors for turning available resources into functionings that enhance household food security capabilities and ecological well-being?



Capability Learning Pathways:

#A: Moral-relational aspect of sustainability and social-ecological wellbeing

#B: Forming a group or institution

#SB1: Membership, criteria and registration

#SB2: Leadership and Committees

#SB3: Operational

#SB4: Constitution and ToR [leading to #SC4 establish CMF (long-term)]

#C: Water Security

#SC1: Infrastructure solutions (spring protection, water tanks, boreholes and water pumps)

#SC2: Water Infrastructure Committee

#SC3: WH&C practices

#SC4: Establish CMF (long term)

#D: Land Security

#SD1: Maximising land use

#SD2: Soil Fertility

#SD3: Soil Conservation methods (erosion)

#E: Knowledge and Skills

#SE1: Training Workshops

#SE2: Experimentation (demonstration sites)

#SE3: Access to knowledge resources

#SE4: Peer-to-peer Knowledge sharing

#SE5: Internal group learning

#SE6: learning exchanges

#F: Agricultural Inputs and Equipment

#SF1: Donations

#SF2: Seed bank and exchange

#G: Access to Labour

#SG1: Adapt planting when family around

#SG2: Help each other

#H: Finance/Capital

#SH1: Income generating

#S: Access to Market Value Chains

#SI1: Access to Market

Figure 8.7: Capability Learning Pathways and Expansions at CL9

8.5.1 Motive-object of activity

The reflections held with the research subjects over the course of the process and more especially during Change Lab Nine indicated that over the years some members of the group introduced a wider variety of vegetables, fruit and trees coupled with rain water harvesting and soil conservation methods since the appearance of NGOs in the area (see Section 6.3). As such, it was inevitable that the participants' feedback encompassed the changes in sustainable food production evolving from early 2000s when new methods, new crops and technologies were introduced in the area. The intervention however, assisted to enhance practices and catalyse the interest in new members expanding the scope of the activity to further home-based gardeners within the Lutengele villages from approximately 30 to 71 people as per the group's register. In consolidating the activity, the group members indicated that certain agro-ecology methods had become embedded in their practices thus contributing to the expansion of key capabilities such as #SC3 (WH&C practices), #SD1 (maximising land use), #SD2 (soil fertility) and #SD3 (soil conservation erosion control). These were (WESSA, 2018):

- Swales – ditches on contour, for catching, sinking and storing water in the soil and reducing soil erosion.
- Mulching – covering the soil with organic material such as dry grass to retain soil moisture and regulate soil temperature.
- Making compost from organic matter such as kraal manure, grasses and weeds.
- Irrigating in the dry season, storing water in tanks.
- Using vetiver grass to retain soil especially on swale mounds.
- Introducing fruit trees into gardens.
- Banana circles – catching run-off or grey water and composting materials in a pit that feed bananas.
- Planting windbreaks along the fence line of the vegetable garden.

Some examples of the above are presented in the following excerpts:

Man: Let me stand up. We gained a lot of knowledge from the school, WESSA and Miss Laura. We used to only farm maize and beans, and pumpkins. Then from the school and Miss Laura we were taught that in a garden we can't only farm one thing. We saw a change after that. Our gardens are of a high standard. We learned to use contour line and the dimensions to dig. And to keep three metres between each hole I dig. I can use more water because of that. My garden is now full, luscious and green. It became clear that a true farmer will be built by coming to the workshops and applying his knowledge in the garden. I don't think I am alone in this.

Group: No, you're not..

Man: I just want to say that I have seen the difference. We were able to plant trees without taking out a cent. One tree is so expensive. We can't afford it there at the nursery. The trees have also protected our other plants from the wind. That's the difference I've seen and felt I should share. Thank you. (Change Lab #CL8)

Woman: We learned to use mulching and used it to conserve our plants so that they don't dry up and die. (Change Lab #CL9)

Examples of sustainable agro-ecology practices to take forward:

Research assistant: The first one we said is contours. What else did you say?

Woman1: Mulching.

Research assistant: So uMama said mulching. What else?

Woman2: That compost. It helps a lot when I plant.

Woman3: The tanks, which means I'll be watering more.

Man: The banana circles. Helps me a lot.

Research assistant: So, Mr Sadina said banana circle.

Woman4: Using manure from the kraal helps. I then put the plants or seeds that I want to grow.

Group: Yes! We love it [vetiver], it's beautiful.

Woman5: Yes, we are still continuing [hedges]. (Change Lab #CL9)



Picture 8.2: Implementation of swales in the Lutengele villages by November 2017



Picture 8.3: The adoption of mulching, intercropping and plant intensification methods by learner participants, November 2017

8.5.2 Tools/Instruments

Access to agricultural inputs and resources increased during the course of the learning process either directly mobilised by individuals (e.g. donations from local hardware stores) in the group or through the group and research intervention efforts, to persuade funding investments into the area. Inputs or agricultural livelihood assets served as mediational tools in activity and thus played an integral role for the expansion of practices and reconfiguration of activity as a whole. These are summarised as follows:

- Water storage systems (#SC1) – 33 households with additional rain water storage capacity (20 000 litres) making a total of 84 000 litres of storage capacity.
- ‘Soft’ ecological infrastructure such as *in situ* rain water harvesting systems (e.g. swales, trench beds, fertility pits, tree pans) and microclimate improvement through wind-breaks (#SC1) as well as access to other agricultural inputs - 4780 metres of swales dug in 71 households food gardens, 439 fruit trees planted, 310 windbreak trees established, 1750 vetiver grass slips planted and 5000 seedlings distributed and access to natural fertiliser
- Access to capacity development opportunities and materials such as WH&C learning resources translated in isiXhosa (#SE3); the learning demonstration site established in view to continue making use of this site post intervention (#SE2); and agreement between members to continue learning from each other beyond the intervention (#SE4). Although a skills assessment was not formally conducted post intervention, new

capabilities were evident by the change in practices and scope of activity on the sustainable food production practices that the participants had adopted.

- Access to labour support in the sense of 'soft' labour and assistance to vulnerable and members at risk (#G).
- Access to financial capital in the form of micro-loans (#H).

8.5.3 Rules

A constitution with terms of reference was consolidated as a result of the expansive leaning process (#SB4). The constitution encompassed the finalisation of membership, criteria and register (#SB1), the appointment of leadership (#SB2) and the operational procedures needed (#SB3). The formalisation of the group through the drafting of the constitution served to change the rules of the game in ways that primarily affected the young *makoti*'s position within this structure (Section 8.4)

8.5.4 Subject/s

Changes in the group or farmers network undertook various processes. From an initial semi-formal group comprised of a few women (approximately 30 members) to a larger more formalised network of 71 women and men of small-scale farmers. Significant achievements had been accomplished by the group's collective agency, as described in detail in the preceding sections. Evidence pointed to the accepted value of being part of a group as an institution able to catalyse change from its 'collective' power and will and thus the capability to work effectively together to expand agricultural practices and capabilities as presented in the excerpt below:

Woman: We were able to get tanks.

Group leader: Our committee worked well together because we were able to go out and speak to people. We were able to communicate about who was going where and what they were going to ask for. When I came back from my missions, we'd meet up and report back.

Research assistant: So, the goals of getting trees and all of that, has there been a difference in how you worked as a committee?

Group leader: Yes, there is. Ever since we were given trees, we've worked well together. We've continued to work well, and others even want to join our group, and we as a committee sat and decided that we are not blocking anybody from joining. We want people to come in their numbers. (Interview #IHH8_18)

Plans for continuing working as a group or entity were also captured during the workshop discussions as well as during the individual interviews with key members of the group:

Young widower: We should continue with farming and planting seeds. We must make sure that everything we have been taught is being applied.

Research assistant: Okay, but what can you as a group do to make sure it is sustained?

Young widower: What must happen is that those of us who are committee members need to keep the momentum by having regular meetings. For example, when you guys are not here, we call each other and have our discussions. Then I suggest that we go into people's gardens and look to see who is still doing well and who isn't. (Interview #IHH7_18)

It is Important to say that having undergone an expansive learning process, the group members also portrayed 'breaking away' from dependency and the ability to see themselves as sufficiently matured to take charge of their own affairs and the fulfilment of their resource deficits:

Group leader: I would like for us to not get lazy or discouraged. We should continue farming and also ask people to keep knocking on doors asking for help. I also don't want us to be dependent on Laura and Kerry and NGOs. Yes, we prefer their help than government, but we don't need to be dependent on them. We don't even want for NGOs to come in and say, "we can build you a house for your meetings". We have Mr Ndabeni's house, we even have Mr Sadina's house. Please can everyone keep knocking on doors and not give up. Amen. (Change Lab #CL9)

Having said this, there was great appreciation for the valuable contributions made by the researchers and local NGO and the suggestion that such relationships should continue into the future for the group to continue being motivated and supported with their future plans and aspiration fulfilment:

Woman: We will have the strength to sustain ourselves. But I think that having you here helped motivate us and guide us on what to do and what not to do. (Interview #IHH5_18)

In summary, the institutional formation in the form of an '*lqumrhu*' acted as a hub towards social transformation and was the engine for capability to expand. The study confirmed that by increasing voice and leadership through a social network or platform, women (and men) as actors had the chance to become socially active, make decisions and potentially become a more inclusive institution to continue shaping their own development and transformation.

Moreover, there were also changes experienced by the individual subjects of the group as a result of the learning process. These transformations include more intangible and intrinsic

aspects of capability expansion or empowerment such as dignity, pride, hope and improved intra-household relations and family well-being as further described in Section 8.5.7.2 below.

8.5.5 Division of labour

The most prominent change regarding division of labour in the activity system was reported as the shift in gerontocratic authority resulting on less expectations by elder women on young women or *makotis* to carry out labour intensive agricultural tasks (#G) and in changes of roles and responsibilities of women. Additionally, the participants also expressed the value of having on-site access to water through the provision of water storage system. The installation of water infrastructure eased the participants' ability to carry out their domestic chores and so the reduce the "triple burden" referring to women's work overload (Section 6.2.3. Having easier access to water as well as reducing the levels of water drudgery associated with the ease of having to fetch water from far away sources (Section 6.2.7) means more time available for other chores and activities, including cultivation. Further details are outlined in Section 8.5.7.2.

8.5.6 Community

By the end of the intervention there was a sense of improved relations within the two participating villages. The airing of past tensions with regard to the disbursement of previous water storage systems and the development of fair and just criteria and selection processes of new beneficiaries added to this sentiment. A sense of solidarity and fairness filled the room especially during the last interventionist workshop. The group seemed better prepared and willing to engage with other stakeholders to continue strengthening and expanding their activity (e.g. local authorities, government agencies); however, it was not clear whether they would take up this challenge beyond the confinements of their geographical area without the assistance of the local NGOs with whom with they have been associated to.

Research assistant: Or maybe if I put it this way, would the group continue without NGOs?

Woman: No. We wouldn't cope. (Change Lab #CL9)



Picture 8.4: Research participant employing two general workers to assist her with the implementation of swales in her garden

8.5.7 Outcomes

The participants had an opportunity to reflect on the outcome of the process drawing on the vision and principles developed for their catchment within which their agricultural activity and well-being depended (#A: living sustainably). The analysis from the individual interviews conducted with the ten core participants shed light into the empowering outcome that the learning process had on these women as manifested in the improvement of their sense of pride and dignity, better intra-household and social relations and ultimately their well-being and the well-being of their families at large denoted in the data.

8.5.7.1 *Living a more sustainable life*

Woman: Then Thoko arrived and she asked us how we want to change our catchment area. I wasn't sure about this vision and how we would achieve it. I wasn't sure if it was the right way. But I persisted. Then when the trees arrived, I noticed some change. Our

catchment area is beautiful. The gardens were green, exactly the same thing Thoko was talking about was happening before my eyes. I never thought this would happen in Tyityana. I do wonder whether the forests will grow back. I don't know how the rest of the catchment area will look when thinking about the indigenous vegetation. (Change Lab #CL9)

The participant expressed that their efforts in the implementation of sustainable agricultural practices derived from the intervention contributed to and aligned with their catchment vision in several ways, even though it seemed an unattainable goal at the start of the process. The above excerpt also denotes the participants' understanding of the bigger picture beyond the confinement of the garden fence by expressing concern about the scarp forest being cleared. Other points were raised in terms of a healthier catchment experienced as a result of the introduction of sustainable land use practices such as improvement of soil fertility, reduction of soil erosion and water availability at the level of the household or *umzi*.

Woman: I have noticed a difference, especially with using the [vetiver] grass. Near the bottom of my garden, the soil is fertile and the produce is healthy compared to the produce in the top part of my garden. The water is contained by the contours and the vetiver as it runs down from the top to the bottom into my garden. This is a great thing for me. I'm even thinking of starting a business for this vetiver. (Change Lab #CL8)

Woman: Good morning. For me, the change I saw was with the contour lines. The soil in my garden would get eroded by the rain, exposing the soil that was not good for planting. I've seen a difference since using the contour lines. It contains the soil when it rains. My trees, corn and plants are beautiful and healthy. Of all the trees I was given, none of them have died. They are still as they were.... But yes, for me the contour lines have made the biggest difference. (Change Lab #CL9)

Crop productivity and consequently improvement in food security was reported as a result of the increased cultivation of a variety of food crops for longer periods. Yield increased due to the ability to irrigate and through the implementation of swales and other methods. Household income was also reported as a positive impact due to the financial benefits generated from local sales of produce surplus. Although a thorough impact assessment and evaluation had not been carried out post intervention, there was evidence from the testimonies, interviews and observations that positive change in this regard had happened. Additionally, the installation of water tanks and the availability of food produced at the household reduced the risk of children falling into the local river and springs when fetching water and the exposure to wild animals when harvesting wild fruits and plants from the forest.

Woman: Today we are dignified farmers. My garden is beautiful. The plants are growing well. They are big. I am grateful that we were listened to. We had said we don't want to use streams because it's dangerous. Our children go to the river to fetch water and don't come back because they drown. We no longer have to worry about that. Thank you so much for giving us dignity. (Change Lab #CL9)

Woman: I have a young grandchild that I sometimes look after. When we'd go to the forest together, I would think about what I would do if an animal were to attack us. I'd have to leave them behind to run away. But now I don't have to go so far to grow food. (Change Lab #CL9)

8.5.7.2 The intervention investment contributed to the enhancement of women empowerment and the well-being of their families.

The gender analysis at household level aimed to get a deeper understanding of the expansive learning process and its relation to women empowerment in terms of how the process, through the improvement of food production practices or livelihood strategies, contributed to intra-household dynamics, bargaining power and well-being in general (Section 5.4.1). In light of this, evidence have shown that families benefit when women have greater status and power within the household (Smith et al. as cited in FAO, 2011). In other words, stronger bargaining or negotiation skills (*siya thetha thethana*) over, for instance, agriculture decisions regarding production, investment and consumption, positions the women in a more influential role over their families' well-being (Section 6.6) as well as themselves. Cheryl Doss (2013) presented a strong case for the relationship between assets and bargaining power by speculating that owning and controlling assets provides women with more bargaining power, options and a sense of security over those women who are restricted from productive endowments and resources such as land, water, livestock, agricultural equipment, technical support and financial capital. Other inputs such as education and training opportunities and access to social networks have been considered in this analysis. However, it is worth noting that although the general global assumption is that an increase in access and control over productive resources would result in an increase on women agricultural productivity (FAO, 2011), the risk is that it may also come with an increase in social and familial expectation or constraints or, simply, more demands. The following text briefly outlines the 'empowering opportunity' that the learning process yields on the core participants' agency in order to negotiate their way through pertaining intra-household dynamics, either directly or indirectly; and thus towards access and decision-making over these resources and opportunities as manifested in their attainment of aspirations (Section 6.4 and Section 6.2.12) and expansion of their capability and practices.

- i. *Access to training workshops or mini-cycles and other capacity development opportunities (peer-to-peer) increased women's 'basic' capability and consequently the expansion of other capabilities:*

Woman: Yes, there is. We used to fight but now we are able to get along. For example, the workshop we've done at Sis Nolundi's place? The one on vegetable beds? A lot of women said that it wouldn't work for them, but some of us said no it will. Afterwards we all went to our gardens and tried it out. It worked, and those who were doubting came to ask for advice. We worked much better together. (Interview #IHH5_18)

- ii. *Improvement of agricultural activity assisted women to directly contribute towards greater household well-being in the form of food security, financial security and their children's education. Access to new technology, equipment, improved diversity of plant varieties (e.g. water tanks, plants and trees) and assistance (labour) relieved women from maintaining and improving agricultural productivity and a higher level of resilience, water security, and income generation and ultimately the well-being of their families. The water storage infrastructure especially impacted positively on women's productivity throughout the year and their standard of living, especially for single women households:*

Woman: I see the village as sophisticated since we got tanks. I only work with one hand since the stroke took out my other hand and leg. I would struggle to go to the river and get water. We struggle to get water, so we have to buy it. There was no way for me to use that water to water the garden; I had to use it to drink. So, I thank God that I can now have tanks and farm to meet my needs. The reason why I am expanding my garden is so that I can farm more and add onto my grant. (Interview #IHH1_18)

Woman: Thank you. Because of this project and everything that I've learned, I farm, I eat, and I sell my own produce. I can contribute to the offering at church because of the money that I've made from farming. These tanks have made my life easier. I sell bananas, butternuts, potatoes, all because of this project. We have been blessed. God taught us that we mustn't envy. (Change Lab #CL9)

Woman: I am here with my husband. We struggle to manage with money because our children and our grandchildren that we have to look after. I was asking for food from my neighbours. (Change Lab #CL9)

Woman: Since I sell my produce, I place my pumpkins and potatoes in there. The produce that comes from there is healthy. To add onto that, the trees that we've been given, we never had those trees. I can now sell fruit as well. It means that I am improving and progressing. I am a real farmer. When I go into Boxer, I don't even buy anything. Sometimes they think to buy from me ... Also sold sweet potatoes at police station and cash comes immediately. About R1000 or more. Good sweet potato produce!

Research assistant: ... His mother was helping him out financially with his studies, even though he was getting loans and bursaries, but his mother was able to help him more this year. (Interview #IHH7_18)

- iii. *Agricultural achievements brought about a sense of self-worth, social status and identity and bargaining power¹⁸. As previously examined, economic growth can improve the material conditions for exercising agency. However, higher household incomes alone are not enough to eliminate the lower capacity of women to exercise agency – what matters is an increase of women's bargaining power and ability to influence household choices as well as aspects of intrinsic value such as self esteem:*

Woman1: Patience truly is a virtue. Thank you so much to Mrs Ndabeni and to these young women here (Laura and Thoko). May God bless you in everything else that you do. You have helped me become a person with dignity. I was overwhelmed with emotion when my tanks arrived. I was smiling for no reason in the streets. The world felt brand new and my spirits were high. Even today, I still feel the same.

Woman2: I've been motivated to do more work in the garden and also change the way that I do my work. I have pride going to work in my garden.

Research Assistant: What is ibhongo in English? Pride, right? (Change Lab #CL8)

Woman: This water we can even use it to wash our bodies now. What you have done for us is great. I have three makotis who are now more relaxed. (Change Lab #CL9)

Woman: Being a farmer is amazing. Even if you don't have a brother or mother, it doesn't feel like it. Being a farmer feels like having a brother or mother. You are well fed from food for your garden. A difference is that I don't have to go around asking for food because I have my own now. In the gardens, we can meet up as women and gossip instead of our homes. It is refreshing. So, I just want to say thank you so much for helping us. (Change Lab #CL9)

- iv. *Intra-household dynamics improved as women participants increased their agricultural practices, status and social relations throughout the expansive learning process, especially between makotis and mother-in-law, women and their children or family at large:*

Young woman: Yes, there has been a change. The older women don't look down on us and they consider our input as well. They don't ignore what we are saying because we are younger. They understand that we are all seeing the same thing, so what we suggest is valid. They can ask for help from us as well. So, we communicate and give each other advice. (Interview #IHH5_18)

¹⁸ Bargaining power does not only require a shift in power relations but also "gender voices" so to make choices available on the basis their preferences, incentives, and constraints of different family members (World Bank, 2011).

Young woman: I am living a better life than before. For example, when I was living in my old home, the reason I moved was because I didn't get along with my brother-in-law. So, having a garden has helped me. They think of me as a big sister. When we have issues at home, they come to me and I am included in the plans. I am also helping my brother out. When he needs tomatoes, I can give them tomatoes. I don't buy tomatoes in town; I pick them from my garden. He even offers to buy me the things that are short in the house. So, my family life has improved. (Interview #IHH5_18)

Woman: I would like to say thank you. God has helped me so much by bringing you here to help us. I am so overwhelmed with gratitude. When I sit in my house and look at my contour lines, I am grateful to God for bringing you here to teach us how to farm. My trees are full of fruit. I wake up just to see my fruit. I am so full of happiness. I can go into my garden and harvest food. I don't need to bother or my makotis to fetch water and tend to my garden for me. That means we don't argue that much anymore. When I need water, I have a tank and when I need food, I can get it from my garden. (Change Lab #CL9)

Woman: When he (the child) saw the tanks in the garden, he got so happy. They'll always complain that their mother [the respondent] is gone for three or four days when I attend the workshops, but now I can show them why I would go for so long. I don't even buy potatoes and they can also get water from the tank with no hassle. It makes them happy to see the progress we have made. They can see why I've been working so hard and that makes all of us happy. No, you guys have really upped the standard this time. I don't know what I can say. (Interview #IHH7_18)

- v. *Securing access and control over water resources at household level freed up women's time for (re)production and leisure activities (easing the triple burden). Water for life in the household and water for livelihoods through production are two of the foundations for human development (UNDP, 2006). Easy access to sufficient quality water resources had directly linked to gender empowerment and poverty reduction as it not only improved livelihoods and food security for women (Section 6.2.7) but also reduced time spent accessing distance or time consuming water sources. This was manifested in the research site with women whose homesteads were resourced with water tanks making life easier for women particularly during the dry season when water was a scarce and costly resource:*

Woman: Used to go to At Kukhaphi, at the Umzimvubu river ... I always have back pains carrying water from the river. And one bucket will not be enough for all the chores I need to do. I have to plan around that and use the water sparingly. The tanks will help me especially in winter. I will not touch them until winter. Instead I will use the taps and get water in buckets for the garden. (Interview #IHH5_18)

Woman: I'm forgetting something. Since having a tank, my livestock can drink right here. I used to have to hire a donkey to fetch drinking water for me. So that will be a big convenience for me ... There'll be a great difference in all my activities. I always needed water. So now, if I cook, wash, drink or water the garden, it will be much easier for me

to do all those things now. Because we use to pay R300 to get about twenty containers delivered to us. These areas have slopes so asking someone to fetch and carry water for you was a big ask. I sometimes would be reluctant to. But now that I have a tank, I don't have to do that anymore. I just have to make sure that the tank is collecting the water correctly when it rains. Because if I don't check, I will be the one to suffer. (Interview #IHH7_18)

Overall, Section 8.5 briefly outlined the expansion of the sustainable agricultural capability or the reconceptualisation of their activity, as experienced by the group and the individuals who constituted the group. The evidence also pointed towards the group's realisation towards their collective aspirations as encompassed by their vision of the Common Good or well-being of their catchment or landscape as: fulfilment of basic needs; peacefulness and happiness; nourishment and physical health; and a healthy and productive catchment. Investments in material 'power tools' or stimuli in enabling processes and mechanisms such as formative interventionist research interventions, have also proved to enhance women's bargaining power and opportunities to change their household and community social relations, their pride and identity. In other words, the developmental aim of this process turned out to be "*a process of expanding the real freedoms that people enjoy*" (Sen, 1999, p. 3). This is an investment in "power tools and processes" or real opportunities that would enable women to improve their status, intra-household bargaining power and ultimately agency towards realising their agricultural aspiration and well-being.

Text Box 8.1: Summary of changes over time

I am Mr Sadina and I am here filled with so much gratitude and thanks. This area from Tyityana to Qhoboshendlini is collectively known as eGxigxi. We never get anything. Even when we ask, nobody bothers to help us. It's looked down upon us. Thank you to Mrs Ntlakwana [Gertrude] and the young women here. We have seen changes in our catchment area and in our gardens. We were taught how to plant and farm in our gardens. We used to think that we can only farm during the summer and would only farm maize. In winter, we'd let our livestock graze there.

Then the change came. We were told to farm fruit, spinach, cabbage; things that we'd usually buy in town. We didn't know that we can farm these foods in our own gardens. We were taught how to avoid soil erosion and how to make the soil fertile to grow plants. Now our gardens produce healthy food for us to eat. We now farm all year round, not only in summer and spring.

We no longer bring our animals to graze in our gardens. We've seen a change with the use of contour lines. We were also taught how to dig holes for the planting of trees correctly. 80 centimetres deep. And now our trees are lush and tall.

Our gardens are bright green. The water is directed by the contour lines and waters the plants. Our soil is no longer eroded. We say thank you, we've seen a difference. The old way of doing things, of fetching water from the Umzimvubu and carrying 20 litre containers on our shoulders. The arrival of the tanks has relieved us. We didn't know where we would get the money to buy these tanks. We can see a difference in our catchment area.

When it eventually rains, the tanks will collect the water and I won't even bother going to the river. I'll be able to farm even more than I used to now. Thank you so much to Laura and Thoko. We hope that God blesses the NGO, so that all the doors that need to be knocked on may welcome them with open arms and we can get the other things we asked for. We can see that things are improving, not going backwards. We just need to hang in there and be patient.

It wasn't easy for us. For others it was easier; they got trees as they arrived. But we didn't give up, we kept on farming. Farming needs patient. You ask for things and you wait. Thank you so much for all the work you've done for us. We've learned a lot. We have compost in our gardens. We have trees. We eat the food we've grown.

Through farming, you can get what you would buy in town without spending a cent. Those who haven't farmed will come to your garden and buy your produce. Thank you. We can farm, we can water our plants. Now our area will be at a high standard. Like we said in our vision, we want our area to be beautiful.

(Change Lab #CL9)

8.5.8 Developing capacity to aspire

The preceding sections alluded to the participants' improvement of their bargaining power or navigational capacity strengthened as a result, amongst others, of their participation in a mediated learning interaction among the group members. The participants' ability to manoeuvre through the various obstacles and tensions presented along the expansive learning process, as

well as evidence of agentive action in accomplishing the co-designed solutions, provided a positive outcome of the process as participants got closer to the attainment of their sustainable livelihoods and well-being aspirations. Aspirations, as defined by the members in Section 6.2.12 and Section 6.4 were mainly confined to the well-being of their families and being able to become better and more productive food growers alongside ecological and sustainability principles of their landscape. According to Appadurai (2004), interventions of this nature should aim to expand people's navigational capacity to move towards the achievement of their aspirations thus developing and increasing people's capacity to aspire regardless of their circumstances. If an individual is able to demonstrate the functioning of aspiring through the expression of one or more aspiration, it may mean there is capacity to aspire, and that the accomplishment of aspirations may lead to further capabilities and increased aspirations (Section 3.4.2). The data indicates that research participants have expanded their aspirational horizon as associated capabilities and functionings unfolded through the expansive learning process and capabilities learning pathways. In some instances participants indicated that they were able to look after themselves and their children better, and in other cases the home-based food production aspiration increased to one of becoming 'cash farmers'.

Woman: I would like to be able to maintain my children from the money I make from farming. For them to go to school and have what they need without struggling. I told the teacher at school about my vegetables and fruit. I hope she will spread the word. I'd also like to go to sewing school to make more income for the family. My husband is working so that is good. (Interview #IHH5_18)

Woman: I will be physically healthy. I want my garden to be full of produce so that I don't need anything. The thing is that I don't have anyone helping me. I had to get the fence from the old garden to use here. None of my children send me money, so I rely on the grant. I don't want to ask them for water. The tanks will mean I won't have to. So, in my heart, I want to progress. This area that I plan to plough is huge. So, I don't want to struggle. Putting effort into the garden will contribute to the grant as well ... Since I plan on farming even more and was held back by not having tanks, I would now like to sell my produce. I want an area or place to sell my produce. I want to have my own stall. (Interview #IHH1_18)

People appreciated the new opportunities that the group brought about in working as a collective and thus the possibility of organising themselves as a vegetable producer entity to enter the market value chain:

Woman: I want to add something. In this group there may be five of us who are farming tomatoes, how can we sell it? We know how quickly tomatoes can rot if you don't use them. Thokozile, I'd like to pose this question to the farmers now. Fellow farmers, how would it be if we went to Spar and Entabeni and Boxer, showed them our tomato produce and we give them a price that we are selling at? What do you think? I think we should

approach people. There are some Indian people who like to use tomatoes in their traditional food. We should do more to sell our produce because our farm put together is big. We have a surplus of cabbage, spinach and carrots and it rots. So, we should get a way to offload that. I have already reported this and I want to go to the manager at Boxer to see if we can sell boxes of our produce. (Change Lab #CL9)

Having access to water and new food production skills also brought in a new light in how people envisaged themselves in the future:

Woman: You see now that I have a tank, I will produce even more. The cabbage is the next thing I plan on planting, spinach; there's nothing I will be short of. I want to break away from stokvels. This is my son's last year. No more scrap metal! I've done that, and I've told the other ladies that I'm no longer collecting scrap metal. I want to focus on my farming and my housework. Yesterday I was supposed to be going to Durban to sell scrap metal, and I told the ladies that no, I am no longer in the group. What I'd like to do is go to pay points and sell my produce. I'd like for my son to get his teaching certificate and find a job. (Interview #IHH7_18)

Lastly, in November 2021, I had the opportunity to informally visit the villages and homesteads in the Lutengele area. Although not empirically investigated, at a glance, the homesteads presented positive progress towards the improvement of the food production aspiration as presented by women during the period of the research study. These included the adoption or uptake of WH&C practices such as swales, mulching and other water and soil conservation methods, as well as diversification of crops and sub-tropical fruit (e.g. mango, avocado, bananas, etc.). It appears that the women farmers' group continued with their collective activity beyond the formative intervention process supported as part of this study.



Picture 8.5: Lutengele homestead food gardens in November 2021 exemplifying the continuation of the activity beyond the formative intervention

8.6 Summary of the expansive learning phases in the study

The expansive learning process or formative intervention undertaken by the women farmers network or group was described in detailed in Chapter Seven and in most of Chapter Eight. This section summarises how the group moved along the expansive learning cycle along with the interventionist researcher by highlighting some key insights derived from this process. The summary is as follows:

- i. The evolution of the learning actions followed the expansive learning cycle as depicted in Figure 5.1 in Chapter Five and supported by nine Change Laboratory Workshops. The process was undertaken over a period of two years and two months from 21 June 2016 to 26 September 2018. Some frequencies of the different learning actions happened interactively along the cycle especially those related to questioning, examining and reflecting.
- ii. The stepwise progression of the learning action undertook a deviation during Change Lab Four (Section 7.3.2). The deviation was at the instructional intentional level of the researcher-interventionist or action-level, which in turn allowed for the abstraction of the germ cell by the research subjects – the idea of an *lqumrhu* or group to drive learning and development.
- iii. Smaller cycles or mini-cycles were purposely embedded in the process in Change Lab Six and Change Lab Seven as cognitive and practical inputs for the advancement of primarily the 'basic' learning capability pathway (human capacity) that consequently had an effect on other capability learning pathways.

Reoccurring mini-cycles or interactive loops were also identified outside the workshop sessions in the form of smaller discussions and examinations held by the members of the group without the researcher. These reinforcing loops appeared in the last stages of the expansive learning process, implementation of modelled solutions (e.g. drafting of constitution), allowing the process to move forward and be catalysed by the introduction of new material stimuli or inputs (e.g. water tanks).

- iv. Non-expansive learning actions manifested at the level of implementation between Change Lab session Five and session Six (Section 8.2). The non-expansiveness encountered was catalysed and amplified with the introduction of *chathas* or incentives as material inputs or auxiliary stimuli as described in Section 8.3.
- v. The surfacing and manifestation of a double bind as a discursive contradiction (inability to mobilise water infrastructure) was a critical step or turning point in the process to the abstraction of the germ cell and the adoption of the water storage systems as auxiliary motive for catalysing implementation and transformative agency, and most importantly, for the group

to believe in their own power as drivers of their own wellbeing and the wellbeing of the catchment at large.

- vi. Transformative agency expressions followed the learning action themes in each Change Lab, but as mentioned above, some learning actions happened interactively with others during the workshops and so did the transformative agency speech and actions.
- vii. Trajectories of initiatives and innovations were generated during the epistemological learning process in the form of capability learning pathways towards sustainable agricultural capability expansion of the women farmers group.
- viii. Changes in the construct of activity and object of activity evolved along the expansive learning cycle as depicted by the evolution of the capability learning pathways illustrated in Figure 8.1 to Figure 8.5.
- ix. As the Change Laboratory intervention was done in isolation from other activity systems (third generation CHAT), this diminished the potential for greater impact. However, strengthening the inner collective agency and breaking away from deep-seated identities of dependency was a good step for the women farmers group to develop their readiness for further interactions with multi-stakeholders and constellations of activities and the working towards the establishment of a river or catchment management forum (CMF).
- x. Having said this, the research process at the level of implementation was *interwoven* with another activity led by the local NGOs in their support to improve food productivity in the area. The NGO's activity intersected in the process catalysing positive expansion of the pre-designed learning pathway capabilities, instead of being a separate element (Bronkhorst et al., 2013) or process.
- xi. The research participants presented an interest in attending the Change Lab sessions as was evident in the increment of attendees from session one to session nine (from approximately 30 people to 71 people). The sessions nurtured the expansion of the group's collective agency, their capacity to aspire (Section 8.5.8) and their self-confidence to overcome some of the contradictions and barriers encountered in their activity system.
- xii. The sustainability of the participants' transformative agency in the continuum of the capability learning pathways was difficult to ascertain from the reflection and consolidation learning actions and individual interviews. There was a gap in the process in the sense of thoroughly assess and evaluate the impact of the actions putting doubt on the durability and sustainability of the new solutions and consolation of capability learning pathways. By the end of the process, it appeared that some solutions would continue beyond the intervention such as subjects attending to their gardens; but others may halt without the support and

assistance of external inputs from the trusted organisations, researchers and NGOs. This could only be confirmed with follow-up sessions and visits to the Lutengele villages over a lengthy period of time. “Sustaining transformative agency requires ongoing effort if it is to continue beyond the external support provided during the initial intervention period” (Thorne, 2015, p. 43).

8.7 Conclusion

This chapter has presented the latest stages of the expansive learning process undertaken by the women farmers group from the Lutengele villages in working towards the expansion of their agricultural capability and social-ecological wellbeing of their catchment or landscape. The chapter has provided a detailed description of the unfolding of the group’s reconceptualisation of their activity and object-motive by mapping the movement from the associated set of capabilities to their realisation. In other words, the learning and development process entailed the movement from an abstract conception of the small-scale agricultural activity to concrete achievements or capabilities via the abstraction of a germ cell and the principle and method of double stimulation. The process when intersected with both material and conceptual stimuli gained transformative momentum, volitionality and collective agency as evident on the different forms of transformative agency expressions and outcomes, including women’s capacity to aspire and their subsequent empowerment.

CHAPTER NINE: KEY FINDINGS OF THE STUDY, CONCLUSIONS AND RECOMMENDATIONS FOR FURTHER RESEARCH

9.1 Introduction

This chapter concludes the study by outlining the main key findings derived from the expansive learning process undertaken by the Lutengele women farmers' group in a quest to achieve their crop production and well-being aspirations through the realisation of associated capability learning pathways as described in Chapters Seven and Eight. The chapter aims to respond to the main research question outlined in Chapter One, which relates to the consolidation of the interrelationship between transformative learning theories and methodologies in formative research interventions and the achievement or expansion of participants' capabilities. This chapter therefore synthesises what has been learned from the empirical investigation by suggesting that the formative nature of the interventionist research has enabled participants to move from aspirations to their capability expansion and empowerment with the mediation of double stimulation method and tools along the expansive learning actions. The chapter ends by outlining recommendations for further research.

9.2 Brief overview of the study

The first phase of the study set out to map the context in which the participants' small-scale food production activity was situated, their aspirations relevant to sustainable agricultural livelihoods, food security, well-being and lastly, the main factors or contradictions inhibiting participants from attaining aspired food production goals. During the initial phase of the expansive learning cycle I was able to address the first research question: What tensions and contradictions in aspiration-practice relationships shape household food security in the context of catchment management of the women farmers group or river forum in the Lutengele area? Twelve contradictions were identified from the historical and socio-cultural analysis of the home-based food production practices and agricultural activity in relation to the research participants' envisaged aspirations (Chapter Six), which under further scrutiny were thereafter considered by the participants as critical capabilities to pursue during the collective and transformative learning process in the second phase of the study (Chapters Seven and Eight). Drawing on the Capability Approach as a lens to view agricultural development, social transformation and empowerment, provided me with the tools to conceptualise participants' aspirations, their true value and the capabilities necessary for such aspirations to be realised in a context filled with socio-cultural and political

power relations and dynamics faced especially by women. The Capability Approach coupled with CHAT (Chapters Three and Four), enabled me to deepen my understanding of the agricultural activity system in the context of the study in light of the engendered power dynamics associated with women having access to productive resources, their culturally expected roles and responsibilities in the institution of their households, their families and the community at large, and most importantly, aspects of gerontocracy defined by their age and status in society.

In the second phase of the study, a series of second stimuli were introduced in the form of conceptual and material tools and tasks with the aim of moving participants along the expansive learning process. This led to the unfolding of the collectively defined capability learning pathways for sustainable food production or expansion of their agricultural capability in the context of sustainability of the local micro-catchment. Through the various Change Laboratory workshops and supporting mini-cycles in the last stages of the formative interventionist research, I supported participants' learning and development in a way that not only brought individuals together to co-design relevant solutions, strategies and working groups or committees but also catalysed and amplified transformative agency and the expansion of food production capability, sustainable land use practices and ultimately, empowerment. This answered the second and most important research question: Can expansive social learning processes shape conversion factors for turning available resources into functionings that enhance household food security capabilities and ecological well-being? The methodology of expansive learning and formative interventionist research design intervention, with supporting mediating tools, has proven a positive intervention in the attainment of capabilities (or functionings) as individually and collectively defined by the research participants in relation to their aspired livelihoods, consequently improving their well-being as well as their ability to navigate through the various gendered power dynamics, especially for the young women participating in this study. The study proposes expansive learning as a suitable critical and transformative learning theory and methodology for the mediation of collective deliberations and the pursuit of capability development as charted by the learners' collective and individual aspirations. This is a learning process that not only pursues the learners' attainment of material and cognitive changes but also opens up new opportunities and most importantly, the freedom to exercise their agency no matter the circumstances – the freedom to aspire and to be, do and become what one values as instrumentally and intrinsically critical to live a life they have reason to value.

9.3 Key findings derived from the research

In this section I provide a summary of the key findings and conclusions derived from the study, contributions to new knowledge and the recommendations emanating from such conclusions.

9.3.1 The emergence of capabilities for engagement in collective learning and sustainable livelihoods expansion

9.3.1.1 *The identification of capabilities derived from a collective socio-cultural, socio-political and historical analysis of the object and contradictions found in the activity as matters of concern and indicators of capability achievement or freedoms.*

Aspirations in this study were considered as mental manifestations shaped in the social and cultural make up of the aspirer and become the driving force for development that represent what 'really matters' (see Chapter Three). Accomplishing such aspirations via the achievement of aspirations-underpinning capabilities is a reflection of the kind of development that the Capability Approach promotes and supports; therefore, these capabilities become the 'indicators' of success of the learning and development process. The research has shown that working on participants' aspirations towards sustainable livelihoods and well-being enabled them to analyse the kind of capability set available to them and thus the constraints lying behind their realisation. Using CHAT as an analytical tool to surface the structural, socio-cultural and ethical-political contradictions and dissonances developed over time gave rise to the identification of valued capabilities underpinning the participants' aspirations to collectively work on. Identifying constraints on action enables us to identify what lies inside, and what lies outside, a person's capability set. The kind of capabilities selected during the early stages of the expansive learning process was dependent on the level of aspiration chosen by the participants. Choosing what aspirations to pursue was based on judgements on the feasibility of the aspirations themselves and thus impacted not only on the formation of aspiration but also the type of capabilities valued and the transformation of the chosen capabilities into functionings. The individual cases presented evidence that in most instances the level of food production aspiration was confined to what they believed was feasible to accomplish, also referred to by Barnett (as cited in Hart, 2016) as "feasible utopia". In other words, participants mainly aimed to improve their practice within the food cropping typology they associated with (e.g. typology A – food grower with low productivity as presented in Table 6.1) and aspired slightly higher in the level of production and returned within the boundaries of the 'umzi' or household (e.g. typology B – food grower with high productivity) as opposed to aiming for a more commercially driven activity (e.g. typologies D – business farmer). Their aspirations were at the same time prescribed by participants' own

cultural and social sphere, which determined their gender roles, behaviours, relations and opportunities.

Aspirations and subsequent capabilities, both at the individual and collective level become the object-motive of the activity to work towards in the expansive learning cycle through the analysis of contradictions and dissonances inhibiting the aspiration from materialising and expanding, the co-designing of solutions and experimentation and finally the adoption of new practices and an increase in participants' aspirational capability.

9.3.1.2 The capability learning pathways unfolded along the expansive learning process as the turning of valued capabilities into functionings or capability expansions

As indicated in Section 7.4.9, nine capability learning pathways for agricultural expansion in the context of sustainability of the local micro-catchment emerged from the historical and ethnographic analysis of contradictions during the early stages of the formative intervention. These contradictions, as pointed out in Section 9.3.1.1 above, were the result of the analytical process undertaken by the interventionist researcher together with the learners or research participants in surfacing the inhibiting factors affecting their aspiration-practice or object-motive of the agricultural activity. The capability learning pathways became more defined and specific in the second phase of the study during the co-development and modelling of strategies and solutions epistemological learning action designed to overcome and work towards positive changes towards the attainment of these aspirations and underpinning capabilities. The process involved the use of mediating stimuli to evoke transformative agency in research participants for the turning of identified capabilities into functionings. These were achieved capabilities as outlined in Section 6.7.13 such as being more water secure, being more knowledgeable and skilful for the pursuit of the envisaged agricultural practices, to name a few. The capability learning pathways should be considered as 'expansive' as the methodology employed for the unfolding of the identified capabilities and their manifestation or achievement were theoretically and epistemologically rooted in expansive learning and formative research interventions (see Section 4.3.6 and Section 5.2.1).

The intersecting capability learning pathways during Phase Two of the study included the following elements of the expansive learning cycle process (Daniels, 2008, p.133): i) questioning the agricultural activity and the social-ecological interrelations to the well-being of the catchment where it is situated; ii) further analysis of the mirror data generated in Phase One and

prioritisation of capabilities for agricultural expansion from the contradictions surfaced; iii) modelling an alternative way of working (expressing functionings, aspirations and capabilities); iv) examining the model to understand its dynamics, strengths and pitfalls (considering conversion factors); v) implementing the model and monitoring the processes and impact of implementation in the dispositions and actions of the group (ongoing self evaluations in context); and vi) drawing on the data to reflect on the processes and outcomes.

9.3.1.3 Capabilities can be mutually reinforcing as the expansion of one capability can lead to 'a hundred steps in development' or the achievement of other capabilities

The study revealed that the attainment of one capability or functioning led to the unlocking of transformative agency and the actioning of further capabilities supported during the expansive learning process. This analytical statement is illustrated in Figure 8.1 to Figure 8.7 and the narrative in Chapter Eight. This finding is in accordance with Zaretskii's view on learning and development that stated that in the course of joint activity aimed at overcoming a challenging situation, development may emerge in several areas simultaneously. In other words, "a single step in learning can represent a hundred steps in development" (Zaretskii, 2016, p.155). For instance, the mobilisation of household water storage systems by the group's efforts led to the enhancement of households' WH&C practices and in turn to the increase of household income from produce sales. My role as an interventionist researcher was to chart participants' Zone of Proximal Development (ZDP) in their co-designing of solutions for the analytical contradictions surfaced, the identification of valued capabilities emanating from the facilitated deliberation process and finally, the triggering of transformative agency and change with the introduction of second stimuli or tools aiming to covert available resources into functionings. The focus on developing the institutional or foundational capability in the form of a consolidated 'farmers group' and the introduction of material stimuli in the form of *chathas* led to the realisation of other capabilities underpinning the object-motive of the participants' agricultural activity.

9.3.2 The movement from aspirations to capabilities via the dialectic principles of 'ascending from the abstract to the concrete' and double stimulation in the expansive learning process

This section summarises the findings relating to the understanding of how the reconceptualisation of the object of activity unfolded and led towards change in human activity and development via the process of expansive learning drawing on the principles of ascending from the abstract to the concrete and double stimulation (see Section 4.4). As discussed in the

study, aspirations were considered as the true motive (both intrinsically and instrumentally) of engagement with the object of activity or agricultural practices, whereas capabilities referred to the achieved functionings within the object of activity (e.g. being water secure). The body of literature summarised in Chapter Three indicated that work on aspirations not only requires people to reflect on their own situation, capability selection and the surfacing of challenges and contradictions inhibiting these from being realised, but also their development and learning process should lead to people engaging in action to overcome the problematic situations and power dynamics encountered in order to achieve their aspirational goals. The literature also emphasises that the deliberative democratic processes promoted by the Capability Approach are processes that are not fully understood with regard to how agency and capability development is unlocked in meditational processes (see Section 2.6.5). There is a need to understand the processes (mental, cognitive, meditational, etc.) required as to how these abstract ideas (aspirations) turn into capabilities and hence the relevance of analysing expansive learning as a suitable theory to explore in this context. In other words, the question in this study is to understand how, by working on aspirations and related valued capabilities in a social learning and expansive intervention, the chosen aspirations and thus capabilities manifest (well-being achievement) and the kind of opportunities (well-being freedom) that are expanded by addressing contradictions and constraints affecting these aspirations from being realised. However, most important to this study is to also understand the kind of collective agency (in terms of transformative agency as described in Chapter Four) that such aspiration-learning process unlocks in navigating through structural power dynamics as well as the role of aspirations in this process (the *process* aspect in the Capability Approach). Six main insights or conclusions are presented in the text that follows.

9.3.2.1 Aspirations (object-motive) may act as precursors of capability development in interventionist research

Despite the various interpretations relating to the object of activity and motive of activity differentiations, this study has adopted Leonti'ev's (1978) object-motive view as being that the object of activity is its true motive holding the drawing power and force for people to engage in activity. The object differentiates one activity from another being the motive encompassed in the object either 'material or ideal, either present or as perception or existing only in imagination or in thought' (Leont'ev, 1978). This resonates with the idea of aspirations as the driving force (object-motive) and precursors to capability expansion. As previously pointed out, the formation of aspirations and the identification of their underlying socio-cultural and historical disempowering

factors gave rise to the formulation of associated capabilities, strategic solutions and ultimately collective and individual agency and transformation. It is in this sense that aspirations have, in the context of this study, assisted research participants or actors to move and reconceptualise their activity in 'concrete' or material manifestations as well as in 'concrete' views regarding life possibilities, relationality and self-empowerment. Having said this, it is worth noting that aspirations may be of different dimensions or levels ranging from immediate and visible material 'wants' and 'needs' (e.g. being well nourished) to higher order normative ideas and beliefs (e.g. engaging in agricultural activity as an ancestral connection) – see Section 3.3. Although I was cognisant of participants' higher level aspirations in their engagement in food production and well-being of the 'Common Good', we were not able to fully grapple with capabilities beyond the ones emanating from the analysis of agricultural typologies people associated with. However, these higher order aspirations manifested as statements communicated by the core research participants and captured in the individual case narratives. In this sense, all kinds of aspirations have in one way or another enriched the object of activity and the drive for participants to collaborate with one another in a quest to learn together, enhance and change their joint activity herewith investigated.

9.3.2.2 The abstraction of a germ cell aided the conversion of aspirations into capability expansion

Section 8.3.5 described how the process of discovering and abstracting a germ cell by the participants during the earlier phases or steps in the expansive learning process catalysed change and development in the Lutengele sustainable food production activity. The section presents the findings confirming that in this study the germ cell emerged from the analysis of the foundational contradiction found in the activity system coupled with the encounter of a 'double bind' as the need for participants to overcome what seemed to be a no-way-out situation leading to a 'turning point' in the learning process. This was the breaking away from historically accumulated dependencies and reliability on external parties and agencies, to the development of an entity to drive progress and change from within, a critical feature in human development programmes such as this one. With support by the interventionist, the germ cell became catalytic towards the actioning of strategies co-designed by participants in their pursuit of their collective aspirations. The germ cell (in the form of the conception of a self-driven group or *Iqumrhu*) and thus the move from aspirations to functionings became amplified with the introduction of material input as auxiliary stimuli or *chathas*. This confirms that the introduction of such material inputs in a context filled with inequalities and deep structural poverty has the energising potential to

catalyse rapid change and the overcoming of context specific power dynamics, sometimes even at a personal risk. However, the introduction of material 'incentives' needs to be brought in not too early into the expansive learning process. This should be at a time when participants have had the opportunity to jointly analyse the root cause of their problematic situation pertaining to their vision, goals and aspirations and have explored different avenues and available resources, including their ability to convert these resources into achieved capabilities or transformative change.

9.3.2.3 The charting of learners' Zone of Proximal Development (ZPD) was mediated with the introduction of an analytical and reflective second stimuli tool or task which led to the formulation of potential solutions and strategic actions towards a new model of activity

Opening up participants' ZPD was firstly brought to the fore by mirroring back to the participants the hypothetically identified contradictions and it was further advanced with the introduction and triangulation process supported by a weighing or ranking of contradictions task (see Section 7.4.9). The task encouraged participating learners to reflect and validate the problematic situation in relation to the object-motive of activity or desired goals and aspirations. After scrutinising the relevance and impact that these contradictions could have on the object of activity, participants progressed along the expansive learning process by agreeing on a way forward and the formulation of strategic actions with allocated responsibilities. Mediating tools such the ones that intend to open up learners' reflecting capability have in this study been shown to be an effective means to enter the ZPD and the dialectic movement from externalisation to internalisation of higher mental functionings or cognition first at the collective and thereafter at the individual level.

9.3.2.4 Double stimulation with material input accelerated the move from decision-forming to implementation in the form of participants' transformative agency, the navigation of power dynamics and action implementation.

A critical finding arose from this study pertaining the use of material and conceptual stimuli in the acceleration of transformative agency catalysing change and dealing with contextual relational tensions encountered by those involved in the social and expansive learning process. The study, as presented in Section 8.3.4, has concluded that when valued material inputs or stimuli are presented to the learners in double stimulation, these can potentially be taken up as auxiliary motive for the movement between the learners or subjects forming a decision to act towards its final implementation once the connection to an auxiliary stimulus is consolidated. In this case, the interventionist researcher is in a position to trigger the participants' transformative agency in

a way that is not manipulative of the outcome but rather in a way that allows participants to freely form decisions and act upon them, firstly with the introduction of change-oriented stimuli at the level of auxiliary motive and secondly, by suggesting, for instance, the spatial or temporal rule of the actual conflict of stimuli. The value that the learners place on auxiliary motives in the form of material and conceptual stimuli in double stimulation processes in collectives has proven in this study to be of significance for enacting volitionality and will towards their collective agency, collective capability, transformation of practices and reconfiguration of the learners' activity as well as the move towards 'freedom' as social justice and capability expansion. At the same time, it is important to acknowledge that 'inactions' may also be a manifestation of people choosing not to act and therefore another exemplification of freedom when looked at from a Capability Approach perspective.

From my experience as a development practitioner over the years and more recently as a result of this study, I can make the concluding analytical statement that working on the object-motive of activity in the collectives and in expansive learning and development processes may not lead to positive change and impact on the subjects participating in this process unless complemented by material-interventions. This is a tension that formative interventionist researchers working with poor communities may face and not be able to overcome with the resources at their disposal. In other words, work on aspirations and capability expansion in processes geared towards change-oriented learning may not yield optimal benefits unless intersected with material inputs in the form of stimuli that catalyse decisions and their implementation and that typically encourage participants to take risks and challenge the prevailing norms and structures inhibiting their well-being, development and social justice.

9.3.2.5 Expansive learning as the shift from individual to collective capability and in turn the advancement of individual functionings and empowerment

The relationships between activity, action and operation are internal and dialectical. The joint activity is realised through the individuals' actions but individuals' actions also form the joint activity. In the same way the objective of the action determines what operations are needed, but on the other hand, the available operations affect what kind of objective can be set and reached. (Virkkunen & Newnham, 2013, p. 37)

This study conforms to the notion that in expansive learning processes the subject of learning is transformed from an individual to the engagement in collective activity and/or networks of activities. In the case of the Lutengele famers' food production activity, individuals identified

themselves as ‘farmers’ and gradually transmuted into the constitution of a group with a shared vision, goals and aspirations to work towards and to engage in a social learning process. The sense of ‘collectiveness’ or social solidarity among the participants progressively evolved as a driving force towards the attainment of their shared aspirations manifested in the exercising of collective capabilities such as the mobilisation of water storage systems as a result of enacting collective agency and action in the form of an ‘*iqumrhu*’ or group. The analysis of collective agency in this study adds to the body of research work and theory on transformative agency and volitionality, which predominantly has focused on the individual psychological processes of the mind leaving room for further research in this regard (Haapasaari et al., 2014). In turn, capabilities and their expansions (or functionings) attained by the group’s engagement in the learning and development process had a positive effect on the individual subjects and their sense of self-empowerment. The process did not only catalyse outcomes dependent on participants’ access to productive resources and their use but also worked at the level of the individual’s bargaining power and their general perception of well-being which expands from the material, to the relational as well as the subjective dimension (White, 2009) – see Section 8.5.7 for more details on reconfiguration of activity and outcomes.

9.3.2.6 The reconceptualisation of the object of activity evolved over the epistemological learning actions alongside the learners’ capacity to aspire for new possibilities of life activity

The section above indicated that the study has assisted learner participants to reconceptualise their agricultural activity system and consequential qualitative transformations at the individual and collective level derived from the expansive learning process which led to the construct of new motives embedded in new object-motive or aspirations (Sannino et al., 2016, p. 603). From the analysis I can confidently emphasise that the learning intervention developed participants’ capacity to aspire in the sense that new and more ambitious aspirations surfaced from the part of the individuals as well as collectively. Aspirations change and adapt to the given circumstances faced by the subjects; the object of activity in return also moulds simultaneously with aspirations. In this way the object of activity is an entity that is never fully attained or complete (ibid.).

9.3.3 Types of mediating tools and stimuli in the aspiration-practice interface (material and conceptual)

Various forms of mediating artefacts were brought into the expansive learning process by the interventionist either as tools and tasks or as auxiliary stimuli co-constructed by the participants themselves during the learning process. The mediating tools in the various forms assisted

learners to progress along the expansive learning cycle with double stimulation in different ways. They influenced the participants' higher order aspirational outcome of activity such as caring for the Common Good and ecological sustainability of their landscape or catchment. In this instance, the co-construction of a sustainable catchment vision and capability dimensions acted as 'anchoring devices' or second stimuli along the full spectrum of the learning process from the analysis of underlying contradictions in activity, to the formulation of strategies and solutions, and into the last stages of the expansive learning process during the evaluative phase. The construction of this auxiliary stimuli emerged from the participants' conflict of motives in relation to analysing their current food production practices in light of the well-being of their landscape with the assistance of the researcher and the introduction of participatory resource mapping tasks. The building of a map, questioning and analysis gave birth to the modelling of visionary sustainability principles (see Section 7.2).

Additionally, working on aspirations and underpinning contradictions positioned participants to rethink, and initially consolidate, their object-motive of activity as agricultural practices that needed to be developed and eventually expanded. The introduction of the different food production typologies acted as a useful tool for participants to begin to analyse and model the type of inputs, resources and strategies needed during the early questioning and explorative phase of the study. The medium to short-term aspirations themselves continued to influence the learning process in defining valued capabilities and the learning pathways developed from the structural, historical and ethnographic analysis of activity.

From the analysis of contradictions and the preliminary mapping of valued agricultural capabilities further analysed and deliberated with the help of a ranking or capabilities weighing task, the participating learners were able to enter into a ZPD which culminated in the co-design of suitable and novel strategies and actions aimed towards the accomplishment of participants capability expansion. The ranking exercise was another example of a mediating tool, which I used at the start of the second phase of the study. The task aimed to solicit participants to reflect on their own practice and carefully model and design what seemed doable solutions in the form of a strategic plan with actions and responsibilities. The plan was brought forward along the learning actions that follow in the expansive learning cycle as an auxiliary tool to support remembering and mobilise collective agency and action, in other words, to follow up on progress and influence the reconfiguration of activity and actions in activity.

As pointed out above (Section 9.3.2.1), the introduction of material stimuli or inputs was most effective in amplifying transformative agency and change in participants. These type of second stimuli provoked learners to challenge their normative and cultural frames that were subjected to, particularly with regard to the young women learners in navigating their position, exercising voice and gaining status among the group members as well as in their individual households.

Furthermore, conceptual tools such as information booklets and knowledge resources also played a part in the learners' cognitive development and improvement of their agricultural practices with a focus mainly on the application of rain water harvesting and conservation methods. These tools were used during the mini-cycle workshops by the interventionist researcher and colleagues to support participants' learning and the subsequent improvement of their practices, expand learners' basic capability in terms of knowledge and skills and ultimately open up further opportunities for the expansion of other capabilities and development (see Section 8.3.2).

In summary, a range of mediating tools were brought into play during the expansive learning process, which enacted various aspects of the learning and development trajectory. On the one hand, some tools catalysed agency and others amplified it (e.g. strategic plan and material inputs). Other tools were designed by the researcher to provoke reflective and reflexive deliberations and take learners into a ZPD phase for the co-development of a newly designed activity and actions, as well as the re-imagining of a desired future and aspirations as outcomes of their activity. Some tools also acted as auxiliary anchors to move the learning process forward in terms of opening up new horizons, future possibilities and developing aspirational capacity.

9.3.4 Dimensions of transformative agency expressions as they relate to 'taking action'

In explicating the impetus of transformative agency at the level of 'taking action', I found the set of transformative agency expressions shared by Engeström (2011) and others inadequate to capture the details revealed by the data. As a result I took the liberty to modify the terminology of transformative agency expressions adapting it to my needs and the research requirements. The modified dimensions were widely used in Chapter Eight in order to illustrate the effect that the *chathas* or stimuli had in catalysing and amplifying participants' transformative agency along the various capability learning pathways. To start with I categorised Engeström's *resisting*, *questioning*, *criticising* and *envisioning* transformative agency expressions and terms as a 'sub-latent' form of transformative agency. This is, in my view, agency that is starting to manifest but

without any form of evidential transformation. This type of agency could easily fade and may be a discursive manifestation of agency fuelled in the spirit of the moment. Further to this, I also categorised *committing* to concrete actions as 'latent' transformative agency, which further included some manifestations of action from the part of the individual as well as inconsequential action not nurtured along the expansive learning process. 'Activated' agency, on the other hand, refers to consequential action. This is transformative agency that emerged from the formative intervention or expansive learning process. Importantly, the 'amplified' transformative agency dimension was used as agency that encompassed greater collective action with some levels of transgression from the part of the learners to overcome both internal and external resistance points or power relations. This leads to new collective structures formed and developed during the Change Labs. Finally, 'mastered' agency referred to actions and capabilities that have been embedded in the learners' everyday practices, consolidated and sustained but that still require conscious effort and are not routinely actions.

9.3.5 Expansive learning as deliberative process for choosing and acting on valued capabilities

As stated in Section 2.6.5 and Section 5.2.3, deliberative democratic processes are based on participatory methodologies that open up the space for people to negotiate, decide and choose valued capabilities in relation to the matter or activity at hand and ultimately take measures to realise them. The previous sections also suggested that these deliberative spaces should aim to enlarge transformative learning (Healy, 2011) through processes that foster collaboration and fair cooperation among participants towards a common goal (Owen, 2001) or object of activity, leaving space, however, for acknowledging conflicts and differences (Sanders, 1997). In CHAT terms, the study has shown that to take on deliberative democracy in expansive learning processes allowed for tensions, dissonances and divergence in the learners' views and plurality in the participants' understanding of the world, and also gave voice to a heterogeneous group of individuals. Here, disagreement and difference gave rise to a dialectical learning process rich in dialogue and reflections through the crafting and implementation of feasible and novel solutions via the advancement of the various capability learning pathways. The learning process required commitment from the part of the participants to engage in joint activity, overcoming relational dynamics and deep-rooted tensions. From this study, I am able to conclude that expansive learning adds value to the deliberative democratic model promoted in the Capability Approach. As a critical pedagogical theory, expansive learning promotes change-oriented learning by provoking participant's critical and reflexive competency in the analysis of their activity and work

towards the reconceptualisation and transformation of the object that the subjects are jointly trying to expand. Expansive learning can shed light onto Sen's idea of democratic deliberative process both theoretically, methodological and conceptually with meditational tools based on CHAT.

9.3.6 Expansive learning processes contributes to learners' ability to convert resources into functionings or capabilities

An important research question in this study aims to understand whether expansive learning methodologies may contribute to the learners' ability to turn their available resources into capabilities or functionings and therefore allow these to act as a conversion factor in such process. The idea of conversion factors in the turning of resources into functions is core to Sen's Capability Approach, which identifies three main conversion factors, namely; *personal*, *social* and *environmental* (Robeyns, 2017, p.46). In conclusion, the study has shown that expansive learning, with the deployment of double stimulation and through the dialectical process of learners ascending from the abstract to the concrete via a chain of Change Laboratory workshops and mini-cycles, has enabled participants to draw on various livelihood capitals or resources in order to improve their food production activity and capabilities, which for some participants required the navigation of relational power dynamics. Learning in this process not only contributed to the mobilisation of transformative agency and collective capability through engaging in reflexivity and decision-making processes, but also enhanced the learners' human capacity in terms of new knowledge and skills relating to, for instance, rain water harvesting and conservation practices. In this sense, expansive learning in this study has added value to the learners' *personal conversion* factor by enabling them to exercise their inner psychological functioning in analysing, reflecting and co-developing solutions. as well as in the practical application of their personal and collective knowledge and skills. Additionally, the very nature of the learning engagement as a collective project, coupled with the purposeful and intended expansion of forming a group stemmed into the strengthening of their social capital or institutional setup and thus became a *social conversion* factor in tackling change and exercising transformative agency. The process also improved other aspects of the participants' social conversion factor in a way that changed power relations to overcome equity and justice concerns, cultural norms and beliefs and thus the young women's ability to exercise their agricultural capability. This was catalysed with the introduction of auxiliary stimuli in the form of material inputs or resources. Lastly, and linked to the above conversion factors and capabilities, the improvement of water security, for instance, as a result of the installation of water storage

systems and WH&C methods catalysed the participants *environmental conversion* (built and natural environment) factors into a more positive standing as a result of the learning endeavour. In this study, the formative intervention via the methodological and theoretical framing of expansive learning has proven to be catalytic for the learners' conversion of resources into improved activity or reconceptualisation of activity, concept formation and aspirations supported with expanded capabilities. The mutually reinforcing and interwoven conversion factors added to the advancement of the learners' development in the true sense, that is, the movement from their aspirations to closer stances to their freedoms.

9.3.7 Evaluation of expansive learning 'impact' with a capability lens looks into transformations at the opportunity level: Freedoms

As I approached the end of my study, it was evident to me that the expansive learning theory did not provide sufficient tools to analyse and evaluate the meaningful impact of the learning process on the research participants involved. Although expansive learning assisted me to look for changes in the composition and reconfigurations in the activity system and new forms of reconceptualised object-motive of activity; the theory failed to enable me to investigate the developmental and transformative impact from an ontological point of view that looks into development at its deepest meaning, notably freedoms. For this purpose, as explained in earlier sections in this study, a capability theoretical approach brings a suitable lens to the evaluation of education, learning and development programmes such as this one. 'Freedoms' in this sense consist of the opportunity aspect that the formative interventions may have brought about (advanced capabilities), as well as the process aspect that such interventions may have nurtured (agency). Therefore, a person's capability should be evaluated in terms of capability freedoms or real opportunities to achieve functionings and so the end of development, justice and freedom should be conceptualised in terms of people's functionings and/or capabilities (Robeyns, 2017). While this study adopted a Capability Approach by engaging the research participants in a normative process of co-defining valued capabilities pertaining to the object and outcome of the learning process as improved food production practices, well-being and sustainability of their landscape; the study did not go as far as thoroughly investigating the substantive freedoms that such processes may have yielded in the participants' livelihoods, well-being and empowerment. I feel that I have scratched the surface and that deeper investigations would have been needed to fully understand the degree in which participants' capability expanded. Coupled with the use of theoretical framings, capability and expansive learning, I believe that the study would have been more robust using other critical framings and ontology to evaluate the learning outcomes.

These include sustainability theory, gender analysis frameworks, and/or realist evaluation to name a few.

9.4 Limitations of the study

As discussed in Chapter Seven, the study focussed on conducting second generation CHAT research by concentrating on the intervention on one single activity system, the Lutengele women farmers' group or network. With the Change Laboratory intervention done in isolation of the other activity systems and the lack of employing a third generation CHAT study, the potential for greater impact was diminished as other stakeholders were not able to participate in the learning process nor be given the opportunity to contribute towards the advancement of agricultural capability and catchment management in the context of the study. However, the intersectional nature of the object and envisaged outcomes or aspirations requires a constellation of activities to come into play with multi-agency initiatives across sectoral and hierarchical boundaries leading towards the developing fourth generation interventions. However, strengthening the inner collective agency and breaking away from deep-seated identities of "dependency" was a good step for the women farmers to develop their readiness for further interactions with multi-stakeholders and constellations of activities and ultimately work towards the establishment of a river or catchment management forum (CMF). Single activity work allowed for bottom-up 'intravention' in mediation of expansive learning and formative interventionist research processes of the small community empowerment initiative.

As noted in previous sections, Section 8.6 and Section 9.3.7, the sustainability of the participants' transformative agency in the continuum of the capability learning pathways was difficult to ascertain from the data generated during the reflection and consolidation of learning actions and the individual interviews. There was a gap in the process in the sense of thoroughly assessing and evaluating the impact of the actions putting into doubt the durability and sustainability of the new solutions and consolidation of capability learning pathways. By the end of the process, it appeared that some solutions would continue beyond the intervention (such as subjects tending to their gardens) but others may halt without the support and assistance of external inputs and further double stimulation processes from trusted organisations, researchers and NGOs. This could only be confirmed with follow-up sessions and visits to the Lutengele villages over a lengthy period of time.

Another limitation of the study was found in the gap that expansive learning theory and methodologies with CHAT work presented pertaining to equity and power aspects in the learning process and analyses. However these aspects or gaps were addressed in the study by adopting other theoretical referents, which provided various lenses and frameworks. The Capability Approach brought an ethical foundation for development into the study, which assisted me to frame the contextual analytical tools during the early stages of the expansive learning process. I found that gender equity and relational power was well examined in the Capability Approach literature affording me with appropriate tools to gain a rich understanding of these informal institutional features (such as culture, norms and beliefs) of the context, as well as the need to be alerted to the diversity and different needs required by the subjects of activity in converting resources into functionings as described in Section 9.3.6 above. Additionally, the deliberative democratic model employed in the Capability Approach has also shed insights into aspects of plurality and voice in collective reflective choice for the formulation of valued capabilities, aspirations and ultimately, in their ability to exercise agency.

Despite widely acknowledged shortfalls in CHAT work in relation to aspects of power and equity (Lidley, 2014), I found the three mediated sub-systems of human activity valuable for gender as guiding parameters for analysis in the study. These were the mediation of production by tools, exchange by rules, and distribution by division of labour (Engeström & Ahonen, 2001). The mediated sub-systems in activity coupled with the examination of inner relations of production, consumption, exchange and distribution (Engeström, 1993 as quoted in Cole, 2005) formed a suitable analytical framing to understand the engendered dynamics in the Lutengele sustainable food production activity.

Production creates the object that correspond to the given needs, distribution divides them up according to social laws; exchange further parcels out the already divided shares in accord with individual needs; and finally, in consumption, the product steps outside this social movement and becomes a direct object and servant of individual need, and satisfies it in being consumed. Thus production appears as the point of departure, consumption as the conclusion, distribution and exchange as the middle, which is however itself twofold, since distribution is determined by society and exchange by individuals. (Marx, 1973 cited in Roth, 2004, p. 4)

Chapter Two, Three and Six described what women bear in patriarchal and hierarchical contexts such as the one in this study in rural South Africa. Their growth, development and empowerment is typically mediated by prevailing cultural norms and rules which determine what a woman can do or not do, their roles, responsibilities and status in society, their families and households, as

well as their voice and decision-making power. The mediating artefacts in the form of socio-cultural rules and norms influence their access and decision-making power on other mediating qualities in activity, namely access to productive resources and education opportunities (tools) as well as, for instance, the gendered roles in the agricultural activity (division of labour). Thus, they influence the chain of sub-activities in the activity such as their opportunity for production, consumption of agricultural outputs, exchange of outputs in the market value chain and, ultimately, how productive benefits are distributed in the household or the institution of the family. I feel that the framing of activity and sub-activities in this light forms a good basis for bringing a suitable equity focus into CHAT research and Education for Sustainable Development (ESD) work.

9.5 Recommendations for further research

9.5.1 Recommendations for future research in CHAT and Expansive Learning

As an interventionist researcher drawing on the Change Laboratory method in a community learning formative research project following the expansive learning actions and methodology, I feel that my role in the process was pivotal for enacting participants' collective transformative agency and action with the introduction of deeply valued material inputs such as the water infrastructure systems mobilised from local agencies and funders. Should these types of resources not have been brought into the learning process by double stimulation aimed to develop participants' agency, I am not confident that the activity would have reconfigured nor produced the same outcomes, should I have not taken the initiative and responsibility to activate such processes in this way. It is important to understand the researchers' capability and impact when formative interventions are supported with material interventions in contexts characterised by poverty and social injustices, and in this way, be able to 'impulse' the process forward with the introduction of stimuli that assist learners to get out of their conflict of motives to change their circumstances by turning the stimuli into auxiliary motives and finally exercise their agency.

Following on this above suggestion regarding further research on the role of the interventionist researcher, I propose further research on transformative agency and double stimulation in expansive learning with 'collective' subjects in activity. As previously alluded to, Sannino's (2015b) Vygotskian double stimulation model has been employed as a core principle and mechanism for understanding and fostering volitionality and transformative agency in interventionist research by tracing the unfolding of concept formation and cognitive development

intertwined with the emergence of agency. Although the body of research in this regard is increasing in CHAT and formative interventionist research, further studies would assist to gain deeper insights in terms of how transformative agency is generated, how the process evolves and how it can be better supported with viable pedagogical instruments (Sannino, 2020) in change laboratories in similar study contexts such as this one. Grasping the pedagogical implications relating to nurturing collective agency and change is critical for increasing the success of environmental education and sustainable development programmes amongst others.

As pointed out earlier (see Section 9.4) tracking the long-lasting sustainability of the actions derived from the intervention was one of the limitations in this study. Change and development can be a very lengthy process and their investigation would require research activities designed over a long period of time. For this purpose, I also suggest that future research uses empirical investigations in order to gain meaningful insights regarding expansive learning methodologies that yield the sustainability of transformative agency and actions in long chains of double stimulation in Change Laboratory interventions.

Further to the above, the emergence of fourth generation CHAT (Sannino, 2020; Engeström & Sannino, 2021) research also provides wide scope for further studies. These could include studies in contexts that require interventions geared towards coming together with multi-actors and multi-sectoral stakeholders and activities across various spatial spectrums and disciplines and in this way, aim to tackle the deep structural, political, environmental and ethical problems found in the complex world we live in. The study has positioned the Lutengele farmers' group to better interact and step up to such learning challenges together with neighbouring activities in the Mzimvubu catchment as well as with others not yet known. I consider this progression a suitable way forward for future research and development intervention in this context.

9.5.2 Recommendations for further research to the field of human development and Capability Approach

The research has established that expansive learning and CHAT work can provide an innovative theoretical, methodological and pedagogical avenue for the expansion of peoples' capabilities and freedoms. As indicated earlier, the critical pedagogy proposed draws from the principle of double stimulation with tools that can potentially assist development practitioners to support the formation of collective transformative agency in the subjects of the intervention during a sequence of Change Laboratory sessions or community-based learning workshops. I would

strongly recommend that further studies be centred on the suitability of expansive learning and change laboratories as a Capability Expansion Methodology involving human development and Capability Approach practitioners particularly with interest in informal learning and community-based empowering initiatives. Additionally, I suggest that further research should be invested in studies that examine formative interventionist research as a participatory action research approach for capability development work in education and learning research and in different study fields and contexts. This addresses the gap highlighted in Chapter Two, in Section 2.6.2, which indicated that capability research in formal education has not fully developed and that this type of research approach would assist with fairness and doing capability development better.

9.5.3 Recommendations for the field of sustainable agriculture and Integrated Catchment Management

In a broad sense, agricultural skills development programmes would benefit from the adoption of the combined theoretical framings that I worked with in this study, namely expansive learning and capability theory in transformative learning in community-based education. The study has proven that social learning spaces afforded the opportunity to learner participants to exercise critical reflexivity in the co-production of strategic solutions as well as enacting valued action or capabilities in their small-scale food production practices. These approaches move away from the dominant constructivist ontologies often foregrounding agricultural development programmes (see Section 2.5 in Chapter Two). At the same time, the process was supported with intersecting mini-cycles with a focus on the learners' cognitive development by introducing new concepts and skills for improved practices around WH&C. I would therefore recommend further investigating the extent the Change Laboratories and mini-cycles influenced the development of farmers' skills and/or agricultural advisors broadly. Additionally, taking a Capability Approach lens in agricultural education and training initiatives should lead to the identification of critical capabilities important to the realisation of the learners' aspirations and capability needs and not only necessary to the production of new 'technical' knowledge and skills. Having said this, I also propose further research work on the emergence of Capability Learning Pathways in sustainable agricultural development and how these may be successfully supported (see Chapter Seven and Eight). As presented in this study, the capability learning pathways emanated from a socio-cultural and historical analysis of the context of activity, which led to the emergence of problematic areas and contradictions in relation to the learners' attainment of their agricultural aspirations and more widely, their envisaged well-being and landscape. This process being rooted in empowering interventionist work, I believe that it provides a good basis for transforming the current agrarian

livelihoods landscape in rural South Africa (see Section 2.2.3 in Chapter Two). Therefore a further research proposition would be to examine the role of such transformative learning pedagogies, combined with aspirations and capabilities work, on reactivating sustainable agrarian communities with enabling policies and strategies. As previously alluded to, sustainable agricultural land use practices and supporting development programmes need to take place at a catchment or watershed scale, rather than at individual activity scale for natural resources to be effectively managed and for the optimisation of the livelihoods dependent on these ecosystems and the services they provide. In this sense, it is important that multi-level and multi-stakeholder activities found within the boundaries of the catchment or landscape engage in such processes for the reasons outlined above. It is also critical that for deeper structural transformation processes to occur, cross-sectoral and spatially distributed change-actors or agents engage and work towards the shifting of the ethical-political and environmental problematic found in these landscapes. Thus there is an urge to expand studies into more advanced fourth generation activity research (ibid.). This study, however, has catalysed the formation of a local-level innovation hub as a space for true and deep-rooted development and with the right support, it has the potential to expand into a mesh of networked hubs both horizontally as well as vertically.

9.5.4 Recommendations for research in the interrelated fields of Education for Sustainable Development and Capability Approach

A final broad recommendation relates to further work in bringing together the two strands of scholarly work namely, Education for Sustainable Development (ESD) research with the Human Development Capability Approach field of study. This study has synthesised the potential touch points and the symbiotic relationships between change-oriented learning for sustainable development, as endorsed by the ESD field (UNESCO, 2018), and capability theory in education and human development. The conclusions from this study have been put forward in the text above; however I consider it pivotal that further research in these complementary fields continues for the promotion of change-oriented and social learning spaces with adults and children, in formal and informal learning environments and pathways in the pursuit of social justices, economic justices and environmental justices.

9.6 Conclusion

This chapter has discussed the summary of the key research findings, their implications for the expansion of the learners' capability in the improvement of their home-based food production activity as well as their empowerment. Finally, propositions for further research in various fields

of work are also outlined. These relate to Cultural Historical Activity Theory, expansive learning and formative interventionist research; sustainable agriculture and watershed development; the human development and capability field, and lastly, the ESD-Capability Approach symbiosis. I am closing this chapter and thesis by confirming that I can positively corroborate that the study has achieved what it set out to explore. It is in this spirit that I can conclude the journey by acknowledging that as a formative interventionist researcher who embarked on an emancipatory and transformative process with rural women in rural South Africa, I have gained deepest insights into the life of South African women in rural settings; I have experienced and cherished their growth and development; and I can humbly say that the study has contributed to furthering their dreams and aspirations.

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APPENDICES

Appendix A: Examples of Topic Guides	Error! Bookmark not defined.
Appendix B: Ethical Clearance Approval Letter	Error! Bookmark not defined.
Appendix C: Example of Semi-structured Interviews.....	Error! Bookmark not defined.
Appendix D: Women's Individual Case Stories	Error! Bookmark not defined.
Appendix E: Lutengele Group's Constitution and Register.....	Error! Bookmark not defined.

Appendix A: Examples of Topic Guides

Focus Group 4 _ 05.02.15

1. Women Status, Authority and Voice

- Who holds the authority in the HH?
- Is there any difference in status with regards to:
 - o Young single women (with and without children)
 - o Young newly married women or makoti (with and without children)
 - o Middle aged, elder women (with and without children)
 - o Widower or divorcee
- Is it beneficial for women to be married in order to increase status?
- How is lobola valued nowadays? What was the meaning in the past?

2. Roles and Responsibilities

2.1 Productive and Reproductive Roles

- Who does primarily the domestic work?
- Are men involved? And if so, how?
- How is men's involvement perceived?
- Are these roles changing over time? And why?
- Are women encouraged by their husbands to find employment outside the house?

2.1 Agricultural Roles and Responsibilities in the isitiya, igadi and field

- Who looks after the land and ploughs in the isitiya, igadi and field?
- Who looks after the water resources and irrigates the isitiya, igadi and field?
- How are you aware of looking after your ecological resources in a way that is not detrimental for your livelihoods in the long term? (e.g. soil erosion, deforestation, water conservation or harvesting techniques, etc.)
- Have these roles and responsibilities changed over time?

3. Access to empowering “tools”: Status and “bargaining power”

- Who has generally access over land, water, equipment, livestock, access to financial services and employment? Any difference between the different women groups stated above?
- Who has generally control or decision making over land, water, equipment, livestock, access to financial services and employment? Any difference between the different women groups stated above?
- Who makes the decisions about distributing your agricultural outputs such as vegetables for food or selling?
- How does poor service delivery affect women? (e.g. lack of roads, water infrastructure, etc.)
- Are women affected by male “controlling mechanisms” such as violence? If so, how is this affecting you and what are you doing about it?
- Are female headed households better or worse off than those headed by males? Elaborate.
- If the male head of the household is predominantly away (e.g. working), how do they influence decisions?
- Is there any other male influence over and above the husband? (“hidden voice”)

4. Education and Capacity Development

- Do you think education can give women advantage to negotiate over productive resources and outputs?
- What agricultural related capacity development opportunities there have been in this area? Provide a detailed account.

5. Agency and Knowledge Networks

- How does it make you feel to belong to a network such as the women’s farmers group?
- Describe when and what happens when this group gets together?
- Who leads this network and what does that person do? Describe in detail.

Appendix B: Ethical Clearance Approval letter



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PROPOSAL AND ETHICAL CLEARANCE APPROVAL

Ethical clearance number 2017.03.1.03

The minute of the EHDC meeting of 9 March 2017 reflect the following:

**2017.03.1 CLASS A RESTRICTED MATTERS
DOCTOR OF PHILOSOPHY RESEARCH PROPOSALS**

To consider the following Master of Education research proposal upgrade for the degree of PhD (Education) in the Faculty of Education:

Conde-Aller, Laura (11C6428)

Topic: A review of the capability approach to the mediating of sustainable rural livelihoods through the enhancement of watershed services and water security in the Mzimba Catchment: A case study of women's empowerment through expansive social learning.

Supervisors: Professor H Lotz-Sisitka

Decision: Approved

This letter confirms the approval of the above proposal at a meeting of the Faculty of Education Higher Degrees' Committee on the 9 March 2017.

The proposal demonstrates an awareness of ethical responsibilities and a commitment to ethical research processes. The approval of the proposal by the committee thus constitutes ethical clearance.

Sincerely

Prof Marc Schäfer
Chair of the EHDC, Rhodes University
17th May 2017

Appendix C: Example of Semi-structured Interviews

Checklist of questions for interviews with women farmers

This questionnaire forms the basis of a conversation between the researcher and the women farmer practicing crop production. Its format is informed by the Women's Empowerment in Agricultural Index (WEAI) and the Cultural and Historical Activity Theory (CHAT) dimensions. It intends to generate data on women empowerment and agency in relation to agricultural and everyday practice in the household influenced by a context of both traditionalists and contemporary worldviews, cultural rituals and religious beliefs. It will be contextualised in the household and community with the intention to establish the current contradictions in the activity system and trace their root causes in an effort for women to identify ways to overcome obstacles and constraints for improved livelihoods. This information will be used in subsequent change laboratory workshops to single out key learning and structural issues among women farmers in their different contexts and how they may be overcome as well as tracing individual empowerment over time. Ten farmers will be interviewed per case study.

1. Household composition and marital status

- 1.1 What is your marital status?
- 1.2 Have you relocated after marriage and how was your experience?
- 1.3 Who is the household head?
- 1.4 What is your relationship to the household head?
- 1.5 How many members of your family stay in your household and who are they?
- 1.6 What is your clan name?

2. Decisions about agricultural production and income generation

- 2.1 Do you participate in food crop farming for household food consumption?
- 2.2 Do you participate in cash crop farming (crops grown for sale)?
- 2.3 How much input did you have in making decisions about food crop and cash crop farming?
- 2.4 How much input do you have in decisions on the use of income generated from farming?
- 2.5 Would you like to improve your participation and input on crop farming and income generation?
- 2.6 Do you make any other income contributions to the household (e.g. employment, grants, etc.)?
- 2.7 How much input do you have in decisions on the use of income generated from these contributions?
- 2.8 How would you like to invest/spend your income contribution?

3. Access to and decision-making power about productive resources

- 3.1 What kind of resources (productive capital) are owned by your family? (e.g. agricultural land, water tanks, livestock, farm equipment, house, cell phone, transport, etc.)
- 3.2 Who would you say owns most of these assets?
- 3.3 Who decides whether to sell them or give them away?
- 3.4 Who would you say would keep the majority of these assets in the case a marriage is dissolved because of death or divorce/separation?
- 3.5 When decisions are made regarding the following (see below) aspects of household life, who is it that normally takes the decision?
- 3.6 To what extent do you feel you can make your own personal decisions regarding these aspects of household life if you want(ed) to?
 - a) Agricultural production
 - b) What inputs to buy for agricultural production
 - c) What types of crops to grow for agricultural production
 - d) When or who would take crops to the market
 - e) Livestock raising
 - f) Non-farm business activity
 - g) Your own (singular) wage or salary employment
 - h) Major household expenditures (such as a large appliance for the house like refrigerator)
 - i) Minor household expenditures (such food for daily consumption or other household needs)
 - j) Whether or not to use family planning to space or limit births(Note: Does the respondent have an option, feels she could get in trouble with someone if she acted differently, do what she does so she doesn't so others don't think poorly of her, or she feels is the right thing to do)
- 3.6. Who contributes most to decisions regarding a new purchase?
- 3.7 Has anyone in your household taken any loans or borrowed cash/in-kind to purchase productive capital?
- 3.8 Who made the decision to borrow?
- 3.9 Do you feel you have access to enough productive resources at your disposal?

4. Individual leadership and influence in the community

- 4.1 Is there a group in your community? (e.g. farmers group, water users group, religious group, etc.)
- 4.2 Are you an active member of this group?
- 4.3 How much input do you have in making decisions?
- 4.4 Why are you not a member of this group?
- 4.5 Do you feel comfortable speaking up in public to:
 - i) help decide on infrastructure (like small wells, roads, water supplies) to be built in your community?
 - ii) ensure proper payment of wages for public works or other similar programs?
 - iii) protest the misbehavior of authorities or elected officials?

5. Role of women and time allocation to agricultural production and domestic life in the household

- 5.1 What daily farming activities are you involved within the household?
- 5.2 How much time you spend in farming related activities in your every day life?
- 5.3 Are there any difficulties in accessing your fields in terms of distance, safety or other?
- 5.4 Who is responsible to fetch water for farming and other household activities?
- 5.5 Are there any difficulties in accessing water in terms of distance, safety or other?
- 5.6 What other activities do you do as part of your daily routine?
- 5.7 How would you like to spend your time?
- 5.8 How satisfied are you with your available time for leisure activities like visiting neighbors, watching TV, listening to the radio, attending religious ceremonies, etc.?

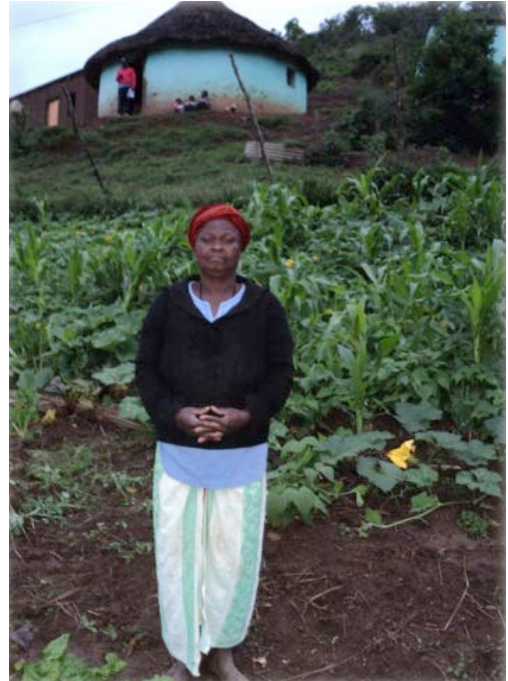
Appendix D: Women's Individual Case Stories

Mambuyiswa Zinyusi

Homestead Code: HH1

Village: Qoboshendlini

Mambuyiswa Zinyusi moved to Qoboshendlini from Qhubuswayo when she married. She belonged to the MamGingqi clan. Her husband, with whom she had twelve children, passed away a few years ago. When she moved to her new household the expectations from her in-laws were to “deliver children, bring them up and build this homestead”, she narrated. When her husband passed away, her brothers-in-law took the family's cattle making agricultural activities in the household more difficult as they did not have animals to plough the land.



At the start of this study, Mambuyiswa cared for her two grandchildren of five and three years of age. The household income mainly depended on her old age pension grant and the two social grants for the grandchildren which added up to R1 700 per month (USD\$ 110). Her household was a modest household with a few belongings such as a cell phone, TV, radio, an electric stove and a fridge. She also had six goats, two pigs and five chickens. They provided a source of income as well as food.

She indicated that the social grants just covered her monthly needs and that if she had some money to spare she would have invested in improving the household, installing water tanks, purchasing additional agricultural utensils, buying more furniture and mostly, spending more on food for her and her grandchildren. Food was not always plentiful and the lack of this was a concern to her. Grain-based foods such as bread, rice and pap were the main staple food for the family.

In August 2016, Ma'Mambuyiswa had a stroke affecting the left side of her body, arm and leg. She struggled to walk and her arm was often very painful. She also suffered from high blood pressure, which she was being treated for.

Agricultural Production and Irrigation Practices

Mama Mambuyiswa had access to a garden (*ighadi* and *isitiya*) of approximately one hectare. She fertilised the soil by applying manure. “I spread the manure all over the garden before I plant”, she explained. She did not use chemical fertilisers, nor herbicides and she weeded her

food garden by hand using a hoe. The household garden produced a good variety of vegetables such as cabbage, spinach, potatoes and butternut but the productivity level was low and could be improved. Although she had access to a larger field close to the household, the field was inactive as it was not fenced and domestic animals would trespass and damage the crops. In her small household garden, she cultivated mainly for home consumption, saving her from purchasing groceries as well as generating a bit of income from a few cash sales to her neighbours. "I don't have to buy everything from town. I can always get into my garden and have whatever I like in the garden". In 2017, her cabbages and spinach were of great quality and she generated over R700 (USD\$45) from these sales. She also enjoyed sharing her produce with people in need in the village.



The garden was irrigated daily carrying water with a 20-litre bucket. She was mostly getting the water from the river Khukhupi that was fairly close to the household. She collected water about three times per day for domestic use, livestock and gardening purposes. She had also purchased a small water tank of 2 500 litres which she used for irrigation. The household daily water needs were about 60 litres/day.

Gardening tasks felt mainly on her shoulders, as she did not have much extra help. "I go to the garden early in the morning and during the day I clean the house, fetch water, wash clothes in the river, cook and go back in the garden to irrigate the soil". She attended her garden on a daily basis but she felt that she did not have enough energy and sometimes she had to hire local people with her grant money to assist in collecting water from the river, fixing the fencing, and with other tasks.

The women's farmers group: New learning opportunities and cultivation methods

Mama Mambuyiswa did not receive formal agricultural training. She used to plant the way she learned growing up (beans, butternut and potatoes) but this changed once she was in touch with the Lutengele farmer's group. "As I am in the project [farmers' group], they teach us many methods of planting and some in controlling pests. I do not have a problem ... my neighbours will teach me everything". The variety of crops planted in her garden increased to include vegetables such as spinach, cabbage, etc.

Positive changes and aspirations with new water infrastructure

Being involved in the farmers' group provided Ma'Mambuyiswa with new water tanks. The tanks, she recalled, made her life much easier.

I see the village as more sophisticated since we got tanks. I only work with one hand since the stroke took out my other hand and leg. I would struggle to go to the river and get water. We struggle to get water, so we have to buy it. There was no way for me to use that water to water the garden; I had to use it to drink. So, I thank God that I can now have tanks and a farm to meet my needs.

By the end of the study, Ma' Mambuyiswa had developed new plans and aspirations. She really wanted to increase her garden's agricultural outputs by enlarging the size of her garden and improve productivity so she could be self-sufficient and generate some cash income from her produce.

I want my garden to be full of produce so that I don't need anything. The thing is that I don't have anyone helping me. I had to get the fence from the old garden to use here [new bigger plot of land]. None of my children send me money, so I rely on the grant. I don't want to ask them for water. The tanks will mean I won't have to. So, in my heart, I want to progress. This area that I plan to plough is huge. So, I don't want to struggle. Putting effort into the garden will contribute to the grant as well.

Mama Mambuyiswa passed on in 2021 as a result of another stroke. May your dreams continue to come true!

Noyolile Mngcetywa

Homestead code: HH2

Village: Qoboshendlini

Noyolile Mngcetywa moved from Mbambalala when she married her husband. Her husband used to work in Johannesburg but for health reasons he had to leave his job and stay at home with the family. They had eight children and five grandchildren. Most of her children and grandchildren were still staying at the family household. As a wife and mother she was expected to bring up her family and look after the household, as she recalled: “I cook, clean, instil discipline to children, teach them how to clean and cook, how to behave at home and in public”.



Although she did not have formal employment, she engaged in multiple forms of earning a living. She made dresses; she sold firewood and also vegetables within the village. This income complemented the main source of the household income, being her husband's disability grant and pension as well as the four grand-children's social grants; approximately R3 520 per month (USD\$225). Her employed children were not helping financially as she would have hoped for. This made her very upset:

Employed children do not “give back to us”. They have wives and families, which make it difficult to ask for money... That kind of treatment hurts me, and I get chest pains, but I endure it. I know that if I were to sit down, I'd have discovered that I have heart problems. Sometimes it feels like my heart will stop because I don't know what I will do.

The household expenditure was relatively high and should there be any disposable income she would invest it into her children's education, additional agricultural inputs and more food for the family. Food was often scarce and the family diet mainly consisted of vegetables, beans as well as tea and sugar. Some of the household commodities consisted of a cell phone, an electric stove, and a fridge, guttering and fencing. About a few years ago, they managed to install a water tank by borrowing money from a relative. They also owned some livestock: seven cattle, two goats, a donkey, a horse, 34 chickens and five ducks. The husband was mainly in control of these assets with the exception of the small stock, which belonged to ma' Noyolile: “It is his house. He has authority”, she indicated.

Ma'Noyolile was one of the founding members of the women farmers group. However, both wife and husband were involved in household food production

Water Infrastructure: WESSA's support

Over and above the water tank that the family purchased, ma' Noyolile also received four roof-top water tanks from the early DWAF RWH pilot project. Having access to water within the household substantially aided mama Noyolile in getting ahead with food production and other

household needs. Sometimes she also shared water from the tanks with her neighbours when this was scarce.



Agricultural production

Noyolile had been farming for over ten years with her main motivation for engaging in agricultural activity to improve the family's food security and earn some cash income. Ma' Noyolile grew an extensive variety of vegetables and fruit in her small *isitiya* and *ighadi* of approximately 750 square metres and 2 000 square metres respectively. She was the main person working in the kitchen garden (*isitiya*) doing all the related activities. The family also had access to a field but it was inactive due to lack of fencing. "There is no fencing and livestock damages it and this causes arguments with people so I decided to stop", she explained. The family's agricultural utensils are various: an ox plough, two donkey carts, hand tools, two tractors, two trailers, one plough and some irrigation equipment.

Decisions regarding the family's agricultural related activities such as what to plant, sales and even livestock were mainly done jointly. "I can make decisions about what to plant but I must consult with him"; "my husband would buy livestock but he would consult me". However, she indicated, "My husband makes financial decisions. I do not make final decisions. I have to give him that respect. I am just an advisor ... As per my own profits, I must consult with him before spending".

Irrigation practices

When the water tanks contained water, Noyolile and her children fetched water from these tanks to irrigate the small vegetable garden. She was very aware of water conservation practises and learned to use it sparingly by hand-irrigating each plant twice daily with a small



cup, especially in winter when water was more scarce=. When the tanks dried out they carted water from the river with a donkey. She was very grateful for the water tanks received from the RWH pilot project as having water storage at hand reduced her struggle around collecting water from other sources.

Multiple agricultural learning sources

Ma' Noyolile learned how to cultivate her garden from various sources but without formal training or qualifications. "I got the basic knowledge in farming at home. After I got married I made my own garden where I learnt so many things by myself ... and two to five years ago by WESSA". She also felt that being part of the farmers group had been great for her as she obtained not only new knowledge with regard to seed collection, natural soil fertility methods and others but also, support from other members of the group.

Drought and water scarcity

Over and above the typical challenges faced by small-scale household farmers in this context (e.g. lack of fencing), the area was hit by a drought in 2017 damaging crops and productivity. "I didn't have as big a harvest as I usually do", Noyolile recalled.

"I want my garden to be beautiful"

By the end of the research study, ma 'Noyolile felt that she was on the right track. "I might not be getting enough money but in terms of food I am satisfied". However, in five years time, she explained, "I would like to build my house and be able to educate my child who is at Cicira training college with money from the garden". She further commented: "I want my garden to be beautiful. Because when a garden is beautiful, it encourages and motivates you to do more work. It makes me feel good".

Mabonisile Zinyosi

Homestead code: HH3

Village: Qoboshendlini

Mama uZinyosi's homestead was originally in Lutengele. The family relocated to Qoboshendlini village during the Majola cattle theft wars. Mama had ten children with her husband, once the Qoboshendlini headman; and three grandchildren. Six children were staying with them permanently and the other children came over during the weekends. She wanted all her children to have a good education so two of her children were undertaking university studies and the others matriculated or were still at school. Ma'Zinyosi herself completed primary schooling.



The household survived on one pension and three children's social grants with some cash remittances from their employed children. The grants were mainly covering living costs such as food, electricity, transport and the purchasing of some agricultural inputs. The highest expenditure was going towards her children's education. She really wanted a good life for her children and grandchildren.

Ma'Zinyosi's homestead was modestly equipped with some basic commodities such as a television, an electric stove, a fridge and some guttering. A water tank was installed a few years ago from some savings. They also had some livestock such as five cattle, seven goats and ten chickens. Besides her gardening utensils (circle and bush cutter), all other possessions were owned by the husband because he was the head of the household. "The household belongs to my husband", she explained.

Her role in the household ranged from attending to the garden, looking after her husband and children, cooking and fetching water with her children from the river. She said there was not enough time in the day to visit friends or relatives. She would only see them at the funerals or family events or during the farmers' group and church gatherings that she belonged to. When she could, she would watch a bit of TV in the evening. Ma'Zinyosi was also a member of the church agricultural project, which was run by the congregation. They were growing butternuts, potatoes and maize to generate some extra income for the church and to assist other members of the congregation when they were sick.



Agricultural productivity and practices

Ma'Zinyosi had a maize field of approximately two hectares, a garden (7150 square metres) and an *isitiya* (2170 square metres). In the field she cultivated maize with her husband to sell to the community at R45 (USD\$2,90) per 5 litre bucket. The money generated from the field was used to purchase a new fence for the garden and the rest was used to cover the school fees, the

hostel fees and uniforms for the children. The vegetables harvested from the small kitchen garden were mainly for household consumption and any surplus would also be sold within the village. She and her husband made joint decisions about their household expenditure and investments but she mainly looked after the children's educational affairs.

Water access and infrastructure

The main sources of water for the household were the local river and the household rainwater tanks. The household had four tanks, which were provided by WESSA as part of the RWH pilot project. The household water consumption was about 60 litres per day, which she mainly carried herself either from the river or from the water tanks. The water was used for general household purposes as well as for irrigation and livestock watering. She eventually connected a pipe from one of her tanks to the garden where she installed a tap in order to daily irrigate her vegetables more easily.

Sharing knowledge

Ma'Zinyosi gained new ideas and information about agricultural practices from the informal training facilitated by WESSA a few years ago. However farming was in her blood:

We grew up being taught how to plant and grow cabbage and spinach. My grandmother taught me. But they never grew well, and we couldn't eat the produce. To make them grow healthy, we learned from Laura and Mr Maqhanqa. We started our garden at the school. Then we were taught about mulching and fertiliser. We used to just put seeds into the group and hope they grew.

She learned how to apply compost, water harvesting practises, pest control, to name a few. She has also assisted other members of the farmers' group with her knowledge. She strongly felt that being part of this group encouraged people to visit each other and learn from each other. "Our group is about sharing knowledge to help each other progress and give each other tips, because you need each other to know what you are doing wrong or how you can improve".

"I am proud of myself"

For ma'Zinyosi's daughter's pre-wedding ceremony, she did not have to purchase any fresh food. She saved about R2 000 (USD\$130) by harvesting vegetables from her own garden. This made her very proud of her gardening achievements, as she commented.

I was really happy because I didn't buy cabbage, beetroot or beans. I used my own spinach and they made cabbage salad with the cabbage from the garden. The leftovers I sold to my neighbours. What I couldn't sell was the beetroot. Oh, I also got onions from the garden. I didn't have to buy it. I was able to cover the ceremony without buying too much. It made me feel really good to know that I don't have to buy everything for the ceremony ... There were a lot of people. I had invited all the villages as well as the congregation at church (about 600 people). They were happy because everyone was well fed.



Future plans and aspirations

By the end of the study Ma'Zinyosi was happy but she still had bigger dreams. "I would like to expand as a farmer, to educate my kids and build a new house."

Mcingelwa Sitwa

Homestead code: HH4

Village: Qoboshendlini

Mcingelwa Sitwa was originally from the MaBhoza clan of Majola. She was abducted when she was young and married into a family from Qoboshendlini where she formed a family and raised nine children. She said that she had no other choice but to stay with her new husband and family; “I stayed here because of respect for my parents”. Her husband left with his second wife and she became the head of her homestead. She stayed with her grandchildren from three of her sons and the elder son’s wife (a recent *makoti*).



The eldest son worked in Rustenburg in the mines and came home during the holidays. Ma'Sitwa's daughter-in-law (*makoti*) moved from Lusikisiki. She was familiar with an urban lifestyle. She assisted her mother-in-law with the house chores, collecting wood and looking after her child as well as the two children from her brother-in-law. “My mother-in-law relies on me. I am her second hand. I wake up early in the morning, prepare porridge and make tea, clean the house, then go fetch water, cook supper outside, clean the children and also spend some time in the garden,” she explained. She also sold snacks, ice cubes and sweets at the local school in order to save a bit of money towards the household expenses.

The second son, born in 1985, was building on the homestead, what he called “an American-styled” home. He worked as a plasterer and a builder in the area. The last-born was 18 and also worked with his brother in construction. Although ma'Sitwa was the head of the household, important decisions were made in consultation with her eldest son, to whom the house will belong once she passes on. Overall, Ma'Sitwa depends financially on her old age social grant, the child grant supplemented by some ‘small jobs’.



One of her biggest challenges was the poorly fenced garden and the absence of water storage. Water was mainly collected from the river and stored in small amounts. She needed approximately 120 litres per day for general household consumption and maintaining the homestead.

“I learned from my neighbour, Ma’Ndabeni”

Ma’Sitwa learned a variety of water and soil conservation methods which she applied to her garden. She made natural fertilisers by mixing manure to the soil, mulching and avoiding pesticides. She learned these from her neighbour, Ma’Ndabeni.

We got the new knowledge from our neighbour. My neighbour, Mrs Ndabeni, taught me all the basic farming skills. I am still learning. Wherever I have a problem in my garden I go straight to her to show me how I can deal with this kind of problem.

She also appreciated being part of the farmers group as they give each other tips at no cost. Ma’Sitwa’s garden made substantial improvements from these interactions and support.

Nomvano Nogwada

Homestead code: HH6

Village: Tyityana

Nomvano Nogwada came from Kungaphesheya. She was a young married woman with two children. They stayed at her husband's family home with the house belonging to her husband. Her husband was unemployed and was looking for work in Rustenburg. He used to work as a taxi driver and later in road construction, but this had ended. Nomvano had many responsibilities. She was looking after the household, her garden, as well as working at the school where she cooked for the feeding scheme.



Early morning I start cleaning the house, cook porridge for kids, work in garden, irrigate the garden and when it is dry, I fetch water from the river twice per day with 25 litre containers. Then I cook for people and the dogs and then go back to garden in the evening. I also fetch wood and look after the livestock when he [husband] is not here.

The household income also depends on the two child social grants and at times she felt she did not have enough food to provide for her family. She had very little time to visit family or friends. When the husband was around, she could visit her family for one day at a time, but needed to come back and attend to the house and garden.

She was a member of the farmers' group but a very shy participant. She had no formal agricultural training but from the farmers' group she gained a few skills which she so proudly applied to her vegetable garden.

Agricultural practices

Nogwada's household had a big plot of land which included a vegetable patch or isitya of approximately 440 square metres and a garden for maize and beans of about 3 700 square metres. She planted a wide range of vegetables, from cabbage to carrots, spinach, beetroot, onion, green pepper and brinjals. The family had access to a larger field, but it was only used once every few years as the field was not fenced. She was motivated to engage in agricultural activities as she wanted to feed her family from the garden and be able to sell surplus to local people, however, the produce was often not enough to sell. She really wanted to generate enough income to invest in her house, buy furniture and fence her garden.

Nogwada was the main person in the family who worked the garden as her husband was often away. She only had access to some hand tools, a hoe and a couple of watering cans.



“I get up at 12am to fetch water”

Nogwada’s homestead had a rainwater tank, but she would also fetch water from the local spring. When the spring dried out, she would go to the Umzimvubu River, which was far, and it took her around three hours to fetch 20 litres of water. She often had to do this trip regularly during the dry winter months and to make time she would get up at 12am to be able to do a few trips before the start of the day. Nogwada was very precise with her irrigation practices. She would only apply 5 litres with a small cup giving half a cup to each of her plants. By the end of the study her household had four water tanks installed (10 000 litres total).

Olwethy Kenya

Homestead code: HH5

Village: Tyityana

Olwethu stayed alone with four kids, two of which were hers, one was her husband's and the other was her sister's. She was originally from Manaleni from the MaFaku clan. A relative arranged her marriage with her husband at the age of seventeen. She agreed to the marriage even though she did not know her husband well. "It was very difficult for me when I first saw him as I was terrified of him and couldn't even look him in the eye". Prior to her marriage she was the victim of two abductions by a man from Umzimkhulu who also wanted to marry her. Olwethu's husband stayed in Durban and she would visit him once a year for a month. Olwethu seldom visited her family home across the river. She would mainly see her mother during the monthly social grant collection day at Tyityana.



Olwethu stayed at her in-laws' place as a makoti. Because the husband was away for the most part of the year, the household was headed by the brother-in-law with whom she had some disagreements. Her mother-in-law had a stroke and passed away in 2007. Olwethu's husband had organised a site for her to build their own home because she was unhappy, even though the in-laws' household belonged to her husband. Olwethu wanted a place of her own where she had

full control and could avoid the tensions with her brother-in-law. She would take her goats and make a new kraal there as well as start a new food garden. In 2018, she had moved to her new home and had started planting.



“I’d like to have a watering can”

At her husband’s family homestead, Olwethu had a very old water tank made with ferro cements and a new 2 500 litre plastic JoJo water tank. She didn’t have to go to the river to fetch water often, only when the tanks dried out, which was between May to July in the winter months. She would go to the river with the donkey her mother gave her when she got married. The household consumed about 60 litres per day, 20 litres for the animals and the rest of the household and the small garden, the *isitiya*. She irrigated with a bucket but she claimed that “a bucket does not irrigate crops the way I want. I would like to have a watering can”. By the end of the study, Olwethu had installed three additional rooftop water tanks at her new household.

“Thank you my wife”

Olwethu’s new home had a big *isitiya* where she grew about ten different types of vegetables as well as a garden to plant maize, beans and pumpkin. With this new garden she wanted to produce enough to be able to generate some income and put it into a savings account for future security in case her husband lost his job and one day, to be able to send her children to university.

She did not have access to a larger cropping plot or field although, she claimed, “We would love to have a field, it is just that we don’t have energy to work it. We don’t have a tractor nor other inputs”. Olwethu only had a few utensils that her husband purchased for her, a hoe and a spade. These belonged to her only.

With her husband being away for most of the year and the children still very young, Olwethu took all the responsibilities of the household on her shoulders, including the livestock. However, when the husband was around he would assist with ploughing the garden and do a bit of maintenance work. He supported Olwethu's food garden endeavours but sometimes, she explained,

... [husband] would question it and he'd ask me to give him details about it, because he wants to be sure that it will work before he supports it. Then he'd see small improvements in the house and see that oh! it's actually going to work well ... I try to convince him by showing some of the things that I'm planning on doing. Then, he'll doubt me, but I do it anyway. When he sees that it's worked, he apologises for not being supportive ... one day, the garden had potatoes that I needed to plant, and I asked him to help me in the garden. He said no, he came back to the villages to take a break. So, I continued by myself. When he came back home the next time, I had harvested and sold six bags. I could buy cool drinks and other things for the house with that money. Then he said, thank you my wife, you've really helped me. He was telling everyone in the village that I was doing well with my potatoes.

Knowledge and skills

Olwethu was not originally part of the women farmers group; she only joined when this study started. Since then she claimed that she had learned how to improve her food gardening practises. Initially, she primarily learned from her family member who was part of the group and used to attend workshops. During the study period she became a keen participant who would try out what she would learn from the group discussions and ask for assistance when she needed it. She had noticed good changes, as she explained:

I've already seen a difference. For example, the garden at the back had really bad soil. The garden is also on a slope and I didn't know how to work it properly. When the rains came, the maize would be blown over. So now that we were taught about contours, the plants that are at the bottom get water now because of them. I get sweet potato and I also plant pumpkin in the furrows, and it grows to be very big. I wasn't doing that before.

Olwethu had adopted a few water and soil conservation practises such as the use of natural fertilisers, mulching and rain water harvesting. These had also improved the quality of her fruit trees:

Another thing is with trees, how to plant and grow trees in soil that is hard and cracking. So, I applied the mulching. My neighbours asked me how I get such big fruits from my trees. Theirs are not as big. So, I told them about mulching, and I cut the grass and mulched the trees and then water the trees. That is what makes them big and healthy.

With her successes, Olwethu had gained confidence and the respect of not only her husband, but also her brother-in-law and other members of the community.

I am living a better life than before. For example, when I was living in my old home, the reason I moved was because I didn't get along with my brother-in-law. So, having a garden has helped me. They think of me as a big sister. When we have issues at home, they come to me and I am included in the plans. I am also helping my brother out. When

he needs tomatoes, I can give them tomatoes. I don't buy tomatoes in town; I pick them from my garden. He even offers to buy me the things that are short in the house. So, my family life has improved.

Yes, there has been a change. The older women don't look down on us [makotis] and they consider our input as well. They don't ignore what we are saying because we are younger. They understand that we are all seeing the same thing, so what we suggest is valid. They can ask for help from us as well.

Nolundi Noceba Zibandayo

Homestead code: HH7

Village: Tyityana

Nolundi Zibandayo was in her mid thirties and had four children, the youngest one still at crèche and the oldest one at university. Her husband passed away a few years ago and used to work as a taxi driver. Nolundi ran a spaza shop (small shop) to pay for her child's university fees. She also received three child social grants, which assisted her to top up the university costs for the eldest son. She also owned some livestock such as three cattle, sixteen goats, ten chickens and four ducks, which sometimes would sell to people in the village.



“My garden pays for my child’s university studies”

Nolundi also had a garden worth boasting about, which she cultivated with the assistance of her children. She wanted her garden to thrive so she did not have to purchase vegetables from the supermarkets in town and to escape poverty! The family had some agricultural utensils and equipment such as an ox plough, two ox carts, some hand tools, two tractors, two trailers and a plough. By the end of the study she felt very satisfied with her achievements and agricultural productivity, she noted that

It [being part of the farmers' group and learning process] has raised the standard of living for me. Since I sell, I can support this child. For example, right now I harvested potatoes and I sold them. I'd let them [neighbours] buy on credit and pay when their grant money comes in. So what I do is combine that money and can pay for the child. Even now, I have sweet potatoes. I'll sell those as well.



“Don’t waste a drop of water”

Most noticeable at Nolundi’s place was the large number of water containers placed around her household. From bottles, to drums, to water tanks ... She and her children tried their best to harvest every drop of rain that landed on their roof. She had two tanks but the water from these tanks was used only for home consumption, mainly drinking and bathing. Her vegetable garden would be irrigated with water from the ad hoc containers, the local spring or the river. The same for her livestock watering. Overall the household needed approximately 120 litres of water per day.



We didn't know how to grow cabbages

Nolundi learned many farming skills from the farmers group. Although she already used to grow maize, she did not know that she could also farm cabbages and other vegetables. She appreciated how the farmers were able to work and support each other, not only in developing their agricultural knowledge and practice but also by exchanging excess produce with one another.

For example, like now when we meet at Gertrude's place, we are able to say we are short of this item or that thing and to make a plan for that. Even with me, I have a lot of potatoes and so I can give those away and we can exchange since we never have money to go and buy what we are short of. So it helps with that and we save money.



Gertrude Ndabeni

Homestead code: LHH8

Section: Qoboshendlini

Gertrude Ndabeni was not from the area. She grew up in Soweto and she spoke four languages fluently (isiXhosa, Sesotho, English and Afrikaans). Her upbringing, experience of the world and strong character positioned Ma'Ndabeni as a leader of the women farmers group. Although well adjusted to the rural life in Lutengele, she would often bring up anecdotes from her past vibrant life in Soweto, such as the Portuguese restaurant she used to frequent or the jazz jives (dancing sessions) with her friends. Ma'Ndabeni married a Pondo for love but in 2011 her husband passed away. They never had children together but her husband had a daughter from his previous marriage. Ma'Ndabeni was taking care of her stepdaughter's son as well as two orphan children from a nearby village. Her home was an open home, "*mi casa es tu casa*," she used to say. Ma'Ndabeni was the go-to person for any assistance needed in the Lutengele villages. Once she was even in politics together with her late husband who was a ward committee, but she left politics and became the chairperson of the local school committee where she served for as long as I have known her [for more than 15 years]. It was in this role that we got to know each other when I used to visit the area assisting schools to establish permaculture gardens. She was always very supportive and in favour of developing the school and the area at large. She was a development worker at heart and not scared to raise any concerns with local leadership nor government officials.



Ma'Ndabeni's income was derived from her husband's pension as well as her own. She also received three child social grants for her grandson and the two foster children. She kept these grants in a Post Office savings account for the children's studies. She also made a bit of money from selling chips and sweets at the school as well as from her own vegetable garden and livestock as well as renting a couple of rooms at her place. Ma'Ndabeni's home was very comfortable. She enjoyed catching up with the news every evening and is up-to-date with current politics and developments.



Agricultural and rain water harvesting practices

Ma'Ndabeni was one of the first beneficiaries of the DAWF RWH pilot project which afforded her with an underground water tank of 20 000 litres of capacity. The small reservoir collected surface runoff flowing from the top of the path leading to her house. The tank was next to the small vegetable garden (*isitiya*). She collected water from the tank using a bucket attached to a rope and transferred to a container placed in the garden for easier access. When she needed extra water she would send her grandchild to the river with a donkey. Sometimes she would also pay transport fees for clean water to be delivered from the river at approximately R10 (USD\$0,5) for 20 litres. Her fostered children would walk to the local spring every day after school.



All children assisted Ma'Ndabeni in the garden. The small kitchen garden was lush with plenty of vegetables, fruit and herbs! The garden produced a great variety of produce from strawberries, oranges and tomatoes to parsley, confrey, garlic, rosemary, thyme and bulbinella. Ma'Ndabeni was a herbs guru and enjoyed advising people on the uses and benefits of these plants.

Ma'Ndabeni was a good advocate for sustainable agricultural practices and she would often provide door-to-door advice to the members of the farmers group.



Her ambition was to grow good and healthy food for herself, her children as well as to give away to poor people in the village. "I'm on the right track because I plant enough and I also give to those who don't have", she commented. She also appreciated the potential income generating benefits of a good productive homestead garden. However, her main drive and aspiration was to see the Lutengele area as a whole on the right track and she dedicated her life to this.

Mbizelwa Sadina

Homestead code: LHH9

Village: Tyityana

Mbizelwa Sadina had ten children with her husband, Tata Sadina. They stayed together with three of their eight grandchildren. Tata Sadina was a very active farmer who used to work in Durban on the sugar cane farms. As he got older he found this work too strenuous so he moved back home where he established a very productive homestead garden together with his wife. Whilst Tata Sadina was entirely dedicated to farming, Ma'Sadina also engaged in other activities to earn a living. She recently started a new job working for the school's feeding scheme, did some plastering for people's homes and also cut grass to sell to her neighbours for thatching. Her days started at 4am with sweeping the household, fetching water, preparing porridge for the family and then going to work at the school. After work she would assist Tata Sadina with their garden and then cook supper in the evening.



The household was a modest household equipped with some basics such as a TV and an electric stove. The family owned some livestock: three cattle, four goats and seven chickens, which they at times sold for cash. Over and above the revenue generated from the food garden, the Sadina's household received three child social grants. Despite this, Ma'Sadina recalled that at times they experienced food deprivation. Decisions at the Sadina's homestead were mainly done jointly; however, Ma'Sadina had full control on what vegetables they would be planting or on what to spend the money generated from her small jobs (e.g. plastering).

Growing for cash

Both Tata Sadina and Ma'Sadina were members of the farmers' group. He was one of the very few male members and a very motivating and active one. They had been supported by WESSA and WCFFO since the start of the programme in the early 2000s with knowledge workshops and learning exchanges with other farmers. Although both Tata and Mama Sadina grew up farming,

they learned new sustainable agricultural and rain water harvesting practices from these learning opportunities.



They had a long term vision and higher aspirations than most of their fellow farmers. They strived for a more commercially driven farming enterprise and often transported their produce to town to sell to the retailers. Their ambition was evident in the high productivity levels found in their homestead garden. The garden was approximately 1 ½ hectares with approximately 80 to 90 per cent of the land under cultivation despite the very few agricultural utensils and limited working hands. Their garden boasted many fruits and vegetables including some different produce not commonly found in the area such as yams (*madumbe*), pineapples, bananas and oranges in addition to spinach, carrots, beetroot, maize and beans. The crops were heavily intercropped and mulching was taking place. Ma'Sadina's wish was to make a good productive garden that would make it possible for her to provide for her children's education so that they could have a better and prosperous future.

Water – the constraint to expand to new markets

The Sadina family did not have access to water storage. There was a water tank attached to one of the dwellings' roofst but it did not belong to them. The water tank was a municipal asset and therefore the water stored in the tank had to be shared with other members of the community for drinking and home consumption purposes, not for irrigation. They usually collected water from the local spring twice per day with a 20 litre bucket, but the spring would often dry out early in the day. Collection of water at the spring was ruled by a first-comes-first-served approach and so they would be up at 4am to be the first ones to reach the spring. With the full moon light they would leave at 1am to beat the crowds. During the dry winter season between June to August, the spring would not run and they had to go all the way to the Umzimvubu River with a rented donkey for R40 per trip for 40 litres. Because water was both difficult and expensive to access, it had constrained the Sadina's food garden from reaching what they had envisaged, as Mbizelwa commented. "Before I plant I must go and get a 20L bucket of water from the Umzimvubu river. This is the same bucket I must drink from, cook from, and lastly water my vegetables, it won't be enough! The next day my vegetables are dying since they never received enough water."

By the end of this study, the Sadina family had received four water storage tanks (20 000 litre) from the National Lotteries Foundation. Their food garden was thriving more than ever before and the cash sales had increased. They had become an inspiration for other fellow farmers from the Lutengele area.

Lindiswa Madolwani

Homestead code: LHH10

Village: Tyityana

Lindiswa Madolwani was a single mother in her early 30s who stayed with her widowed mother. Her father had passed away and the mother became the head of the family but with her eldest son being the family representative. At the family home there were eight people staying permanently: Lindiswa, her child, her mother, her youngest sister and four of her sibling's children. Lindiswa's mother passed away during the time of the study when, as the eldest daughter, she assumed the responsibility of taking care of her larger family. She would not entertain the idea of getting married and leaving the family home unless her eldest brother would start a family and move back home with his new wife (to take care of the extended family).



The family had a spaza shop (small shop) but, according to her, it was not very successful. Lindiswa also found a part-time job for the Apostolic Faith Mission assisting with community affairs. Over and above these responsibilities, Lindiswa was also in charge of the household chores and the food garden. The garden belonged to her, she claimed. She had big aspirations and wanted to become a successful farmer. She had a big plot of land, which she wanted to cultivate and enter into some kind of market agreement with the local retailers in Port St Johns. "I see myself as a productive farmer and to be able to produce and employ other people to assist me with my farm ... I want to expand my garden and sell as much as I can", she claimed.

"The water tanks gave me purpose"

Lindiswa was an active member of the farmers' group and despite being one of the youngest members she used to participate in all the group meetings and discussions. She had a small *isitiya* of approximately 200 square metres, an *ighadi* of about 240 square metres and a field across the road from her homestead of approximately 1 500 square metres. The small plots boasted an excellent array of produce such as apples, guavas, peaches, granadilla, and mango trees in addition to spinach, beetroot, and other vegetables. Her kitchen garden was provided with water storage tanks from the earlier DWAF RWH pilot project. The field across the road was less productive as it was not yet fenced.



She mainly learned sustainable farming practices from the farmers' group and the workshops organised by the supporting NGOs. Having received water tanks gave her encouragement to apply and improve her family garden and aspire to expand and make a living out of farming.

Lindiswa eventually married but stayed at the family household pursuing her dream.

Appendix E: Lutengele Group's Constitution and Register

Terms of Reference – Catchment/River Forum or Group

1. Forum Name: Vukanibalimi (Rise/wakeup farmers) Farmers Group

2. Purpose:

To work together to become better farmers / food growers through sustainable agricultural farming methods.

3. Problems

In general the catchment is affected by changes in rain patterns and is affecting water availability for food production and household consumption. The springs are dryer and it takes longer to walk to water sources such as the uMzimvubu river. The long walks are not safe putting people at risk. Purchasing water is quite expensive. There is not enough water storage and infrastructure provided by government. Water quality is also a concern as some of the water sources are shared with livestock. The area is also experiencing stormy floods washing some of the top soil away. The forests are also becoming smaller and dryer and some wild fruits are becoming extinct. Food production is recognised as very valuable to feed families, bring some income and make small savings. However there are a few constraints to become more productive:

- Lack of knowledge and skills in vegetable production, water harvesting and conservation, natural pest management, seed saving and seedling production.
- Lack of water infrastructure and other agricultural inputs such as fencing.
- Local seedling supply not always reliable
- Sometimes family labour is scarce and need to hire at a high cost
- Main market centre is too far and transport is costly
- Not enough support from government

4. Vision

A productive catchment with:

- healthy water sources and water infrastructure,
- healthy forests (green, free of invasive alien plants and abundant wild fruits)
- healthy soil (free of soil erosion)
- Healthy Grasslands (no veld fires and good pasture)
- healthy and happy people and animals
- Safe space (free of crime)

5. Membership

A new member should meet the following criteria:

Criteria hasn't yet been developed

6. Area

Luthengele Area which includes the two villages Tyityana and Qhoboshendlini.

7. Guiding principles and rules for participation

8. Strategies and Plans

STRATEGIES	PLANS/ACTIVITIES/ACTIVITIES (what, who, where, when)
Water Infrastructure: Mobilise water infrastructure (e.g. water tanks, ground water extraction, water pump)	- Phindile Mcetywa - Ntombi Zulu - Mr Fanangene
Donations: Look for local donations (e.g. hardware shops, agriculture dept, etc.) for trees, seedlings, tools and fencing)	- Gertrude Ndabeni - Mr Sadina - Lindiswa Madolwane
Learning & Knowledge Resources (e.g. seedling growing, pest control, seed harvesting and bank, marketing, rainwater harvesting and conservation, intercropping and companion planting): · Meet regularly to share knowledge · Look for other learning opportunities (e.g. field visits to local gardens) · Access learning resources · Establish and manage demonstration site	- Noandile Mcunukelwa - Nobantu Mankayi - Nomfezeko Tshisayo
Seed bank: Establish and develop a seed bank for vegetables (cabbage, tomato, onion, etc.)	- Khonzephi Mvakwendlu - Mabulisile Bahlule - Qweneleni Phakathi
Help/Assistance: Help each other when there is a need	
Marketing and Sales: [not a priority right now]	

9. Organisation (Roles and Responsibilities):

- Group/ Forum leader: Gertrude Ndabeni
- Area divided in three nodes:
 - Qoboshendlini (Top area): MamSamson and MamuJola
 - Tyityana (Middle area): Nolundi
 - Tyityana (Bottom area): Zukiswa Zinyuse
- Secretary: Zukiswa Zinyuse

10. Meetings

Meetings will take place once a quarter at Nolundi's place which is the demonstration site and is halfway between both villages

Meetings will be coordinated by MamSamson (Tyityana area) and Zukiswa (Qhoboshendlini area).

11. Communication

- Cellphone Communication
- Communication through the group leaders which are Gertrude, MamSamson, MamJola , Nolundi and Zukiswa

12. Decision-making

- Decision making would be by the group leaders. (there was a back and forth discussion on this one especially if incentives were available for the group there was even a suggestion that the local headman and chief be included, in the end I picked up that they were not sure)

Farmers' Group Members_Register

Tyityana Village					
1	Lindeka Noziyoyi	15	Mamzwandi Mbangu	29	Nosakhele Maza
2	Mamsizelwa Nkenya	16	Mbizelwa Sadina	30	Makhontolo Mlamla
3	Qweneleni Phakathi	17	Mazolisile Sadina	31	Nozuzile Mpehla
4	Khonzephi Mvakwendlu	18	Nogcinile Mdingwa	32	Nokwanele Zwelibi
5	Nomfusi Mcunukelwa	19	Fikephi Machutsha	33	Manyauza Madiloyi
6	Mamsondezeni Malitshe	20	Thembani Kenya	34	Ntombi Zulu
7	Nolundi Zibandayo	21	Olwethu Kenya	35	Mafikile Mpehla
8	Nokhaya Mphakathi	22	Lindiswa Madolwane	36	Nomvano Nogwada
9	Mambaleswa Zigebenga	23	Mambangiswa Mcunukelwa	37	Mabulisile Bahlule
10	Mamcebiseni Mpehla	24	Zoleka Zibandayo	38	Noluthando Mjulwa
11	Nothozamile Mlamli	25	Nozamile Mfuduko	39	Nothembile Mlamla
12	Nolungile Mpehla	26	Nowethu Ntentheni	40	Noluvuyo Mgcinwa
13	Nonstapho Mvakwendlu	27	Nomaesile Bahlule	41	Nosiphelele Mzondi
14	Nokwanele Sgebenga	28	Nonstingiselo Matoloshe		
Qhoboshendlini Village					
42	Masindisile Ginyamate	53	Gertrude Ndabeni	63	Faneleni Mvakwendlu
43	Phindiswa Zibandayo	54	Mary Tshiza	64	Fundaphi Mcetywa
44	Nosandile Mtyholwa	55	Mazolile Masuntele	65	Nowinile Mahlokomani
45	Nobantu Mankayi	56	Nomfezeko Tshisayo	66	Sengaphi Fihlani
46	Zandisile Fanangene	57	Maqina Mlatha	67	Nomvelo Mkwenkwana
47	Noyolile Mncetywa	58	Nowethu Menziwa	68	Nomatemba Mseswa
48	Mabonisile Zinyuse	59	Novumile Nkwane	69	Nonezile Ndabeni
49	Nomyangaphi Tshisayo	60	Zukiswa Zinyuse	70	Neliswa Maxhayi
50	Mambuyiswa Zinyuse	61	Noyolile Hendile	71	Phindile Mcetywa
51	Mamcingelwa Sitwa	62	Mambangiswa Magunqa		
52	Mambangiswa Mlatha				