# THE INFLUENCE OF INTRODUCED FOREST MANAGEMENT PRACTICES

# ON TRANSFORMATIVE SOCIAL LEARNING IN A

# SELECTED SOCIAL-ECOLOGICAL FOREST COMMUNITY

**A case of PFM and REDD projects at**

**Pugu and Kazimzumbwi Forest Reserves in Tanzania**

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**ABSTRACT**

Thisresearch investigates the influence of introduced forest management approaches on transformative social learning in the community surrounding the Pugu and Kazimzumbwi forest reserves in Tanzania from 2000 to 2015.The term *transformative social learning* reflectsanunderstanding of learning processes that emerge through conscious changes in the perspectives of individuals or communities while interacting with forest management practices. The investigation explores the learning (if any) that occurred in the community and how and why the learning occurred. It also explores whether the learning was social and transformative and examines the conditions that enable or constrain transformative social learning at the Pugu and Kazimzumbwi community. Thus, the three concepts of *social learning*, *transformative learning,* and *social practices* are central to the research.

Participatory Forest Management (PFM) emerged globally in the early 1980s to mobilise rural capabilities and resources in development and environmental stewardship. The Pugu and Kazimzumbwi community was introduced to Participatory Forest Management (PFM) projects by the late 1990s. The recent global focus on empowering communities around forests has drawn attention towards transformational adaptation to climate change impacts and building resilience capacities. As a result, in 2011 the Pugu and Kazimzumbwi community started working with a project for Reduction of Emissions through Deforestation and forest Degradation (REDD), which forms a key focus in this study as the most recently introduced PFM with embedded social learning assumptions.

This research is designed and conducted as a qualitative case study. The research seeks to study the complex object of socially and contextually constructed learning through a systemic exploration of learning,using semi-structured interviews, focus group discussions, analysis of documents and archival records as well as observations and a reflexive workshop. Supportive information throughfield notes and audio voice and video recording was also generated. A contextual profile of the research site was conducted in March 2012,prior to the actual data collection in 2013 and 2014. Field explorations during the contextual profile helped to describe the research site and promote initial understanding of the context. During data collection, field inquiries based on interactive relationships between a researcher and participants stimulated practice memories and people's living experiences with forestry and the introduced PFM projects under examination. Analysis of data employed analytical modes of induction, abduction and retroduction. Thick descriptions of learning obtained from field-

based interactionswere produced before re-contextualising data through theoretical lenses. The research employed realist social theory by Archer (1995), under-laboured by critical realism, and practice theory advanced by Schatzki (2012) and Kemmis et al. (2014). The research process as a whole was underlaboured by the layered ontology of critical realism which proposes emergence of phenomena in open systems as shaped by interacting mechanisms which in this study were both material / ecological and social /political /economic /cultural.

Chronologies of changes in forest enforcements as well as forest incentive schemes (two key forest management practices that were selected for focus in the study) were observed in both PFM and REDD projects at the Pugu and Kazimzumbwi community and linked to processes of social learning, transformative learning and social practices. Some learning processes were identified through evidence of people's engagement in activities, change of understanding, subtle shifts in people's perspectives and emerging tensions and new social relations. The research identifies potential for community competence in participatory practices and praxis at different historic moments of change in forest management approaches. The research notes some enabling and constraining conditions for learning, changes in agency and social transformations. However, overall, the learning agency that emerged at particular spatial-temporal moments was not progressive enough to stimulate and sustain significant social change and transformation.

Generative conditions that are socially and contextually critical for learning and for enduring change and transformations in a community are examined through practices of the introduced forest management projects in the community. The REDD project implementation at Pugu and Kazimzumbwi is also validated by research participants for its relevance to adaptive collaborative mechanisms. The research found the REDD project mechanism in the Pugu and Kazimzumbwi community was inadequately informed by adaptive co-management practices. Contrary to the emphasis of transformational learning in the IPCC WGII AR5 (2013) and the IPCC (SREX) (2012) reports, the REDD local practices were not supportive of collaborative learning among project stakeholders at the Pugu and Kazimzumbwi community. Inadequacy in collaborative learning in the projects at the Pugu and Kazimzumbwi community implicates gaps in practice arrangements for resource governance systems. With such findings, the research perceives the participatory forest management projects at Pugu and Kazimzumbwi as lacking sufficient institutional arrangements to support learning for social changes and transformations.

This research contributes to the field of Environmental Education by providing in-depth insight into the formation of environmental learning for agency, adaptive change, and social transformations in rural communities as experienced (or not) via introduced PFM projects, REDD included. The research highlights issues of Participatory Forest Management and community learning across different epistemic guidelines, which describe structural conditioning to articulate resource governance in forestry. This research brings to light the potential of iterative transformative social learning for transformational adaptations and resources governance in rural communities.

## ACKNOWLEDGEMENTS

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## ACRONYMS

| | |
|---|---|
| CARE | Cooperative for Assistance and Relief Everywhere |
| CEPs | Cultural Emergent Properties |
| ELRC | Environmental Learning Research Centre |
| ESD | Education for Sustainable Development |
| FAO | Food and Agriculture Organisation |
| FMEP | Forest Management Enforcement Practices |
| FMISP | Forest Management Incentive Scheme Practices |
| IGA | Income Generating Activities |
| IPCC | Intergovernmental Panel on Climate Change |
| JMA | Joint Management Agreements |
| NGO | Non-Governmental Organisations |
| OFM | Organization for Food production and Marketing |
| PEPs | Personal Emergent Properties |
| PFM | Participatory Forest Management |
| PKFR | Pugu and Kazimzumbwi Forest Reserve |
| RCE | Regional Centre of Excellence |
| REDD | Reduction of Emissions from Deforestation and forest Degradation |
| UNCED | United Nations Conference on Environment & Development |
| URT | United Republic of Tanzania |
| WCST | Wildlife Conservation Society of Tanzania |

# CHAPTER ONE: INTRODUCTION

## 1.1  INTRODUCTION

This chapter introduces the study by highlighting the research items that compose this thesis. The title of the study is *investigating the influence of introduced forest management practices on transformative social learning in a social-ecological community in Tanzania: A case of community surrounding Pugu and Kazimzumbwi Forest Reserves.* The chapter opens by explaining the focused objective of the research (section 1.2) and briefly describing the contextual grounds from which the research is conceptualised (section 1.3). The context of this research is expressed in terms of existing relations between humans and the forests that they surround. These are complex social-ecological relations that have developed over the years and in which the community learns. The introduced forest management practices discussed in this study are part of interventional changes influencing these social-ecological relations and they also stimulate community learning. Through the introduced practices, this research explores potential openings for transformative social learning in the Pugu and Kazimzumbwi community.

Section 1.4 reflects on some of the past social movements in Tanzania in which political struggles for development emphasised the learning agenda through Education for Self-Reliance and adult education campaigns. Section 1.5 presents a picture of my life journey and links it to personal reflections that inspired the research focus. The key concepts that formulated the learning ideas of the researchare described in section 1.6 which thus maps the conceptual framework of the study. An overview of the research methodology employed in the study is presented in section 1.7, which is followed by the anticipated contributions of the research in section 1.8. The last part of the chapter outlines the nine chapters that compose this thesis.

Most of the information in this chapter is obtained from policy narratives, including strategic plans, national programmes and policy guidelines. Some of the information is obtained from work reports and proposal documents from relevant institutions, including the Wildlife Conservation Society of Tanzania, where I worked for nine years before starting this research.

## 1.2 FOCUS OF THE STUDY

This research seeks to understand the influence of introduced participatory forest management approaches on social and transformative learning in the Pugu and Kazimzumbwi community by investigating whether these approaches hada learning impact and what changes resulted from the learning. The concepts of social learning and transformative learning are central to the research. The research was mindful of challenges involved in community-based climate change projects since the community was implementing a project for Reducing Emissions from Deforestation and forest Degradation (REDD) during the time of this research (Cundill et al., 2014; Mdemu et al., 2012; Smith, 2008). REDD is a global initiative established through the United Nations Framework Convention on Climate Change (UNFCCC), as detailed in section 1.3.5.

The community surrounding the Pugu and Kazimzumbwi Forest Reserves was purposefully selected for this research. The selection of this community is described in 1.7.1. The community had a long history of community-based forest conservation interventions from early 2000 when Participatory Forest Management (PFM) was introduced by donor-funded projects. The participatory projects have engaged the community in forest management for around five years towards integration of PFM into government mainstream programmes. During this present research the Pugu and Kazimzumbwi community was implementing a five-year pilot REDD project (2011-2015). The project aimed at engaging community collaborations in reducing emissions of greenhouse gases through conscious control of degradation and deforestation practices.

Both PFM and REDD projects, like many other participatory projects around the world, did not use the concepts of social learning and transformative learning in their framing. However, it is made clear by Rodela, Cundill and Wals (2012) that most community-based facilitated projects implement community learning for (implicitly or explicitly) transforming practices. The community-based projects are aimed at improving and changing local management practices thus implicitly implementing social learning (Rodela et al., 2012). Therefore, there is a focus on 'social learning' even in participatory projects that were developed without mentioning social learning in their framing (ibid.). This present research is also informed by Pahl-Wostl, Mostert and Tabara's (2008) experience in exploring the importance of social learning in European water resource management projects. Pahl-Wostl et al. (2008) emphasised social learning as a way of increasing understanding of participatory community learning and change of management practices.

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The 1998 National Forest Policy in Tanzania stipulated forest policy reforms to address sustainable management of forests in the country and to respond to macro-economic restructuration (United Republic of Tanzania, 1998). Participatory Forest Management (PFM) in the form of Joint Forest Management and Community-Based Forest Management were initiated in Tanzania in early 2000. Under the PFM schemes, partnerships were facilitated to enable rural communities to manage parts of forest reserves that fall in their areas of jurisdiction. It was anticipated that communities could share management responsibilities and benefits accrued from the forests through partnerships (United Republic of Tanzania, 2007a). Community engagement in management activities set the context for communities to learn through activities. Learning by doing enabled communities to participate in changing forest practices towards sustainable use of forest resources. Thus, PFM objectives seemed to be anchored in a need for community learning, creating agency for change among communities and transforming social practices around forest ecology. These intentions were stipulated in the PFM guides of 2007:

> In the process, the main learning is not from training but from acting. **Learning by doing** is the key. Progress is marked by practical **problem-solving**: each time a community faces and solves a problem, its capacity to recognize and deal with the next problem is enhanced. (United Republic of Tanzania, 2007a, p. 8, original emphasis)

However, measuring learning evidence is said to be one of the most difficult things to do in natural resource management (Reed et al 2010) due to lack of clearly stated approaches to inform social learning in social-ecological relations (Cundill, 2011). PFM initiatives in Tanzania are for instance widely acknowledged for beingsuccessful (Blomley, 2009; URT 2006) and yet most PFM survey resultsmay not show any clear learning evidence or transformational changes in practices. BothYanda (2010) and Jørgensen (2009) had already anticipatedrelational challenges in management of pilot REDD projects as were being introduced in the country. The anticipated challenges included governance issues with regard to projects designs, transparence, local capacities, readiness of stakeholders to engage in REDD and other systemic conditions (ibid.). Their works do not mention learning however.

Thus, this research contributes to fulfilling the objectives of participatory forest management and the REDD project by probing the learning mechanisms ofthe projects in local

communities such as the Pugu and Kazimzumbwi community. The study investigates community learning associated with two major forest innovations that are commonly employed at the Pugu and Kazimzumbwi Forest Reserves (PKFR). The two management innovations are (1) forest enforcement practices and (2) forest incentive scheme practices as presented in Figure 1.1 and defined in section1.6.4.



*Figure 1.1: Diagrammatic representation of the research focus*

## 1.2.1 The general objective of the research

The general objective of the research is to *investigate the influence of introduced forest management practices on transformative social learning in a social-ecological community in Tanzania.* To do thisit was necessary to explore the learning spaces offered to the PKFR community through introduced changes in forest approaches by Participatory Forest Management (PFM) and Reducing Emissions from Deforestation and forest Degradation (REDD) projects in order to identify if and how social learning and transformations were enabled and/or constrained by the project's mechanisms. The purpose is to explore the openings for transformative social learning in the Pugu and Kazimzumbwi community, in order to potentially inform a more explicit engagement of local people with learning in future project planning and mechanisms.

### 1.2.2   Specific objectives of the research and research questions

Four specific objectives were derived from the general objective. These were guided by the theoretical definition of the object of study and the methodology. The theoretical and methodological frameworks are described in Chapters Three and Four respectively. Each of the specific objectives was designed to answer a set of questions shown in Table 1.1 below. According to Higgs and Cherry (2009), the role of research questions is to focus and guide the research process. However, they advise that the process of framing research questions may remain ongoing during the research process, as contextual circumstances may redefine the research process. The questions presented in Table 1.1 are therefore a reframed version of the initial questions that were proposed before intervention in the research context.

*Table 1.1: Table of specific research objectives and research questions*

| Specific research objectives | Research questions |
|---|---|
| 1. To study the history of change in forest practices at the Pugu and Kazimzumbwi forestry community and identify patterns of changes in forest management practices over time. | 1. What changes in the two innovative focuses of forest management are evident at the PKFR over time?<br>2. When did the changes begin, how did they emerge, how were they engaged with, and what influenced the changes in practice? |
| 2. To identify if social learning occurs, how it occurs, and if that learning was transformative in the context of changes in forest management practices over time. | 3. What social learning is evident within specified changes in forest management practices? How does it occur and why?<br>4. Is such social learning transformative, and if so, how? |
| 3. To investigate whether and how the specific forest management practices, enforced by REDD projects, influenced processes of social learning and transformation. | 5. What forest practices introduced by REDD project mechanisms relate to social learning and transformation?<br>6. How do such mechanisms influence social learning and transformation and why? |
| 4. To identify the likely gaps and opportunities for transformative social learning in the PKFR community, as these relate to the introduction and uptake of forest management practices in the context of social ecology and adaptive co-management. | 7. What are the enabling and constraining conditions for the people of the PKFR to learn and transform as they take up new forest management practices?<br>8. How do the conditions shape (enable or constrain) human agency and transformative social learning through adaptive co-management? |

**1.3 THE RESEARCH CONTEXTS**

Maxwell (2012) defined the research context as the actual setting of the research on the ground. Stephens (2012) strongly recommended that researchers understand the local conditions of specific research contexts. He advised researchers to regard the context of research as foreground conditions rather than background, as they are usually perceived. The following sections will describe different physical, historical, social and psycho-political conditions that constituted the context of the Pugu and Kazimzumbwi community at the time of conducting this research. The descriptions include broader contextual conditions of Tanzania from which the practice of community learning at the Pugu and Kazimzumbwi Forest Reserves was derived.

**1.3.1 The ecological context of the Pugu and Kazimzumbwi Forest Reserves**

*1.3.1.1 Geographical and biological contexts*

The two forest reserves of Pugu and Kazimzumbwi in Tanzania are located in the Kisarawe district in the Pwani administrative region. The Pwani region in Tanzania is located 20 km south-west of Dar es Salaam, which is the economic centre of the country (Hall, Staddon, Howell & Fanning, 2002). The English meaning of the word '*pwani'* is 'coast' and thus the area is a 'coastal region'. It covers a total of 33 539 km², of which 32 407 km² (96.6%) is land and 1 132 km ² (3.4%) water (United Republic of Tanzania, 2007b).

The Pugu forest was declared a national forest reserve in 1947, and Kazimzumbwi became a national forest in 1954 (Mialla & Kijazi, 2003). Both forests were subsequently recognised as part of the Eastern Africa Coastal Forest, which is part of the Tropical Forests of Eastern Africa covering the coast plains of the Indian Ocean (Burgess & Muir, 1994; Malugu, 2006). The Eastern Africa Coastal Forest lies on the eastern coastline of the African continent, along the Indian Ocean, and stretches from the southern part of Somalia to Mozambique (Burgess & Muir, 1994), as shown in Figure 1.1. The Eastern Africa Coastal Forest belt consists of forest vegetation adjacent to the mangrove vegetation of the Tanzanian coastline, as shown on the map in Figure 1.1 (Burgess & Muir, 1994). The forests have been globally acknowledged by the world conservation community as an important hotspot area of conservation priority and are said to be highly threatened (Malugu, 2006; Burgess & Muir, 1994; Burgess et al., 2012).

***Figure 1.2: Map showing the location of the Eastern Africa Coastal Forest from Kenya through Tanzania to Mozambique (modified from Burgess & D'Amico, 2010)***

The National Bureau of Statistics suggested that the Kisarawe district has the highest levels of forest encroachments in the Pwani region; statistics showed that the district scored 52.5% of all reported encroachments in Pwani Forests in 2007 (United Republic of Tanzania, 2007b).An assessment report of lessons from logging in Southern Tanzania was produced at the end of 2005 and it indicated that 80% of timber for the national market was supplied by the Pugu and Kazimzumbwi forests (Milledge, Gelva,&Ahrends, 2007). The proposal document for piloting the REDD project at the Pugu and Kazimzumbwi community also supported the claim by describing human actions that threaten the forest ecology. These include charcoal making, tree harvesting for building poles and firewood, clearing forests for agriculture, and mining (WCST, 2010). The proposal identified weaknesses in forest

governance in terms of enforcement of forest laws as well as community poverty and unemployment as main drivers of forest degradation. The proposal for piloting the REDD project also identified the threats that are posed to the social-ecological balances through the identified weaknesses. The proposal uses this claim to motivate the piloting of the REDD project at the Pugu and Kazimzumbwi community (WCST, 2010, p. 9).

*1.3.1.2 Previous research and biodiversity studies*
Howell (1981) researched the fauna of the Pugu forest and identified many unknown species of invertebrates. Noting a lack of records for invertebrate species in forest habitats, he concluded that the Eastern Africa forests were not adequately researched and not well documented (Howell, 1981; Burgess & Muir, 1994). Howell (1981) acknowledged the earlier findings in the unpublished manuscripts of Wingfield, done in the seventies, which identified and recorded some species of large tree families like *Leguminosae, Euphorbiaceae, Burseraceae* and *Moraceae*.

The forest composition and distribution at the Pugu and Kazimzumbwi forests were continuously and constantly threatened by uncontrolled tree harvesting through illegal[1] logging for charcoal, building materials, settlements, farming and sand mining (WCST, 2010; Malugu, 2006; Hall et al., 2002; United Republic of Tanzania, 1998; Howell, 1981). Previous research findings indicated that conservation efforts in the community were impeded by both social-political and poverty driven factors (Hall et al., 2002; Kahyarara, Mbowe,& Kimweri, 2002). There was a concern linked to pressure from expansion of townships in the neighbourhood of Pugu and Kazimzumbwi.  Baker and Baker (2002), for instance, highlighted the increased population influx to the community from nearby town centres, especially the city of Dar es Salaam. Influxes in population were assumed to retard conservation efforts (Mdemu et al., 2012; URT/UNDP-GET, 2009; Baker & Baker 2002). The lack of definite buffer zone areas between the reserved forests and village lands was also identified as a factor for easy access to the forests (URT/UNDP-GET, 2009). Other challenges for conservation at Pugu and Kazimzumbwi include low levels of literacy and unemployment of community members (Malugu, 2006; Kahyarara et al., 2002).

The Pugu and Kazimzumbwi forests and the surrounding community have been the object of extensive research by both local and external researchers. Some of the research results

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[1]Illegal logging refers to logging processes that are considered illegal according to Tanzanian Forest Laws guided by the National Forest Act, No 15 of 2002.

identified gaps in stakeholders' relations within projects. For instance, Hall et al. (2002) and Kahyarara et al. (2002) reported divergent interests, different motives and understandings of key forestry issues among stakeholders. They reported that the lack of a common focus among stakeholders caused contradictions in forest management at different levels, including national and subnational institutions, NGOs, community groups, development partners and individual personalities (Hall et al., 2002; Kahyarara et al., 2002). The divergence of stakeholders' interests is described by Wals and Schwarzin (2012, p. 12) and Glass, Scott and Price (2012, p. 168) as a "wickedness" in pursuing sustainability issues. Wals and Schwarzin (2012) described the *wickedness* in articulating sustainable management issues as being constituted by different stakeholders' targets, interests, power relations and perspectives. They emphasised the complexity of the process and the uncertainty in achieving intended objectives (ibid.). However, they highlighted the significance of such tensions in providing contexts for social learning through iterative deliberations and harmonised social relations (ibid.).Collaborative deliberations can be regarded as platforms for learning, re-examining routines, and developing innovations for problem-solving ideas (Wals & Schwarzin, 2012; Wals & Corcoran, 2012; Wals, 2007; Keen, Brown,& Dyball, 2005).

This research draws on previous research that proposedincreasingenvironmental education and awareness raising efforts in the community (e.g. Kashaigili, Mdemu, Nduganda, & Mbilinyi, 2013). My research is also informed by recent scholarly work in education that questions the ability of education in meeting human challenges, as described in section 2.2. González-Gaudiano and Meira-Cartea (2010) noted the declining capacity of education for regulating and putting the human-environment relational systems into balance. They described the lowering qualities of education for informing human actions and guaranteeing the well-being of environmental systems in the contemporary era of rapid civilisation and modernisation. This suggests that modernisation reduces possibilities for transformative education and learning (ibid.). With this in mind, this study regarded the call for increasing Environmental Education at Pugu and Kazimzumbwi community with scepticism. In conducting this research, I could not settle for ideas that presented Environmental Education as a prescription for achieving community learning without understanding the learning strategies and processes employed and/or assumed. Some of the common methods for conventional Environmental Education are described in section 2.6.4.2. Lupele and Lotz-Sisitka (2012) advised environmental educators and sustainability managers to be mindful of the ontology of learning strategies whenever the learning is advanced through social-

ecological pedagogies. They emphasised the importance of *learning processes* being a central focus in organising educational programmes. They also emphasised the need to identify different roles and capabilities of learners in forming local agency for particular social-ecological practices.

Thus, this present study is an attempt to research the rarely documented processes of transformative social learning as a specified form of learning process likely to occur under social and structural contexts of relevance to the Pugu and Kazimzumbwi Forest Reserves (PKFR). The study was explorative in its presentation of learning evidence from local people's memories and their living experience around the forests. Lupele and Lotz-Sisitka (2012) praised the use of local people's voices for generating enriching and valid evidence of learning. This was noted in their research addressing the epistemological gaps in studying learning evidence from Environmental Education programmes in Sub-Saharan Africa. Their research ideas were supported by UNESCO's 2011 report, which identified the same gaps and therefore advised researchers in education for sustainability to choose their sources of data from local peoples' experiences, as described by Lupele and Lotz-Sisitka (2012) below:

> The 2011 UNESCO study recommends … "actual experiences rather than review of the literature" …data collection based on tightly focused questions that will capture greater detail about learning processes and learning opportunities. (p. 9)

Thus, this present research demonstrates the use of local people's voices to build evidence for social learning around people's own experiences. Interactive inquiries through semi-structured interviews, focus group discussions, workshop interventions and direct observations are some of the methods employed by the research, as discussed in section 1.7 and Chapter Four.

### 1.3.2   The local community around the Pugu and Kazimzumbwi Forest Reserves

The term 'community' is used in this study to refer to the population residing around the Pugu and Kazimzumbwi Forest Reserves, regardless of political boundaries. Political boundaries in the community could include reserve boundaries and village boundaries as well as district and regional administrations separations.  This research focused on the people that live in the vicinity of the two forest reserves and who depend on the forest resources for their livelihoods. Delanty (2003) described the origin of the word 'community' as derived from the

Latin word *communitas* meaning the expression of *belonging* (p. 11). Delanty's (2003) expression of belonging to a particular locality did not take into account any social or political arrangements within or outside the locality. It is the sense of belonging that mattered most. The strength of the concept of 'belonging' to a locality is regarded by Delanty (2003) as imperative in influencing particular social aspects in the community. This influence could include essential features of community, such as language, common beliefs, local values and norms (ibid.). Delanty (2003) also identified that such social aspects of life were the basis for individuals' frames of reference in understanding the world around them. Merriam and Muhamad (2002) researched the impact of social aspects, like culture and values, on older adult learners in Asia and identified the sense of belonging to communities as one of the factors that enhanced adult learning (Merriam & Muhamad, 2002, p. 49). They observed that older adult learners are more community oriented in their perspectives and hence they contextualise most of their learning priorities in social activities, social interactions and their contributions to social needs of others (ibid.).

Maxwell (2012) looked at traditional communities as societies in which people are drawn together by contiguity-based relations and their social similarities. The contiguity and social similarities formed grounds for solidarity of the community. Maxwell conceptualised communities as social groups that are constructed on "common ties" and on fitting "social interactions" (2012, p. 62). This present study considers Maxwell's (2012) assertion of contiguity factors for binding community units in locating population groups that resided around the two forest reserves. Life experiences and mutual influences on forests were considered as a base for contiguity aspects, such as social relations across localities The social relations between population groups and between people and the forests had co-evolved over the years of inhabiting places around the forest reserves.

This study is also aware of the fact that most contemporary communities are subject to systemic changes due to globalised interventions and cultural diversity. It is also understandable that one can hardly assume a static community without considering influenced practices amidst the rapidly changing globalised world. Yin (2004) identified two factors that influence speedy and sometimes unpredictable changes in social dimensions. These are the increased rates of immigration across different social groups as well as the overwhelming attraction offered by nearby centres of development. Under such circumstances, Yin (2004) strongly supported research ideas that trace social change and transformation processes in contemporary community lives.

The Pugu and Kazimzumbwi community in many ways retained most of its characteristic sociological and anthropological community qualities in a changing society. In spite of proximity to Dar es Salaam, the community is not characterised by city-like features. For instance, there are no dominant centres that could diversify lives, e.g. strong tourist industries, research observatories, institutions or university complexes. Thus, it is possible to claim that the community is still relatively ruralin terms of communities in Tanzania. The current homogeneity in people's lives offered this study a typical interplay of a fairly natural population in its changing environment and practices over time. As such, this study can possibly set a baseline against which the process of social change and transformative development in the Pugu and Kazimzumbwi community (e.g. creation of dominant centres) can be studied by future investigators.

Examples of foreseen developmental changes can be drawn from a number of programmes, for example a study that gained public attention in 2013 for upgrading the Kisarawe district council to a township authority (Isara, D., personal communication, June 2013). By August 2013 it was reported in the Mwananchi newspaper that the Kisarawe district authority was summoned to fast-track the process of surveying land at Kazimzumbwi village, which was earmarked for the development of a modern residential town. The construction project for modern housing at Kazimzumbwi village was to be executed by a local company, Cosmo Group Tanzania Limited. The Kazimzumbwi village, by August 2013, had allocated 400-450 hectares of land for the project (Mwananchi newspaper, 2013). Another potential developmental impact that could change lives in the PKFR community was the envisaged financial gains by local people from carbon trading. The huge sum that was invested for individuals and local community as payment for carbon selling could change the living standards of the community. Baker and Baker (2002) speculated about the potential commercial exploitation of Kaolin under Pugu hills. They described the Kaolin deposit under Pugu hills as one of the world's largest deposits and moreover it was easily accessible for massive exploitation. However, they cautioned against the possibility of expansive commercial exploitation of Kaolin, believing that it could destroy the entire Pugu forest (ibid.).

### 1.3.3 Government frameworks for community learning on forest management

The Forest and Beekeeping Division is located within the Ministry of Natural Resources and Tourism, which is responsible for the management of all forest issues in the country and

governing of community learning facilities focussing on forest management in Tanzania. The Ministry's central aim for forest governance is stipulated in the national forest policy (1998) as promoting and enhancing wise management of forest resources and bee resources (United Republic of Tanzania, 2010). Therefore, the forest and beekeeping policy integrates cross-sectoral approaches in the formulation of management strategies (United Republic of Tanzania, 1998, 2001). Among the earliest documents that explained the strategic significance of forests in Tanzania, was the Tanzania Forest Action Plan of 1988 (Burgess & Muir, 1994). The 1998 national forest policy acknowledged the revised Tanzania Forest Action Plan of 1994 as a baseline for policy guidelines for all kind of forests in the country (United Republic of Tanzania, 1998). The national forest policy (1988) was therefore developed based on information from the Tanzania Forest Action Plan. The forest policy (1988) was followed by the Forest Act No 14 of 2002 and the Beekeeping Act No 15 of 2002 (United Republic of Tanzania, 2010).

To reinforce the National Forest Policy of 1998, the National Forest Programme (2001-2010) was developed to serve as an implementing arm of the policy. The National Forest Programme particularly advocated integrative approaches to forest management at various levels of society, from national to village level (United Republic of Tanzania, 2001). Below is an excerpt from the National Forest Programme that elaborated the integrative approaches:

> The National Forest Programme was developed in order to address the challenging responsibilities in the near future and to increase the forest sector's contribution to the national economy and more so in poverty reduction. Forests and trees play multiple roles in the rural life of majority of Tanzanian people especially women and marginal groups in relation to food security, rural energy supply and household subsistence … Recognizing the ever increasing environmental degradation and loss of forest resources, Tanzania embarked on developing a long-term National Forest Programme to implement the National Forest Policy. The objectives of the NFP development programmes are (i) sustainable supply of forest products and services ensured to meet the needs at the local and national levels; (ii) enhanced national capacity to manage and develop the forest sector in a collaborative manner; (iii) enabling legal and regulatory framework for the sector in place; and (iv) increased economic contribution, employment and foreign exchange earnings through sustainable forest-based industry development and trade of forest products. (United Republic of Tanzania, 2001, p. xi)

This present study assumes that learning occurs from people's engagement in forest activities and thus builds on local people's involvement in such activities. An implicit focus on community learning can be traced throughout the four implementation programmes outlined

in the National Forest Programme. The programme explicitly mentions the desire to promote Joint Forest Management and Community-based Forest Management approaches combined with income-generating activities. The need for learning was made explicit in the first strategic programme, which outlined strategies for sustainable management of forest resources (United Republic of Tanzania, 2001). The programme also elaborated involvement of the local community to participate and the strategic procedures defined by the guidelines for community-based forest management.

The Forest and Beekeeping Division was the sole organ for governing forests in the country, until the establishment of the Tanzania Forest Service as a national forest agency in 2010. The Tanzania Forest Service was established to carry out operational roles for the management of forest and bee reserves as well as forest and bee resources on general lands in the country (United Republic of Tanzania, 2010). The Tanzania Forest Service is also guided by the national forest and beekeeping policy of 1998 in the reorganisation of some forest management approaches. The Tanzania Forest Service established a three-year (2010-2013) strategic plan to address its vision of excellence. The vision identified the Tanzania Forest Service as "A centre of excellence in the conservation of forest and bee resources and sustainable supply of quality forest and bee products and services in Tanzania" (United Republic of Tanzania, 2010, p. vii). The strategic plan highlighted some of the challenges the government faced in involving stakeholders in forest management. A hurdle for the advancement of joint management practices was the lack of proper mechanisms for governing the item of cost-benefit sharing among joint partners in the management (United Republic of Tanzania, 2010, p.7). This hurdle caused many contentious problems in progressing the actual terms of reference for Joint Management Agreements (JMAs) between local communities and the government. This was particularly pertinent in cases where the forests involved in the management partnership fell in the category of national forest reserves, like those of Pugu and Kazimzumbwi. The strategy also emphasised the lack of proper land use plans around communities surrounding forests. The problem of uncontrolled forest harvests was also mentioned and linked to limited government resources for managing forests.

As I personally experienced the challenges observed by the Tanzania Forest Service, I propose an additional challenge for consolidating the insights. This I describe as a challenge of inadequate understanding of the value of epistemic dialogues across different levels of stakeholders during Participatory Forest Management (PFM) implementations. Iterative

dialogues could answer questions such as: How do different groups perceive sustainability in forestry? Who determines what sustainability is? For whom is the sustainability? The 'why' and 'how' questions could harmonise the dialogues. Sincere answers to such questions could reflect on relational dimensions among stakeholder groups and the role of each in progressing sustainability goals (Pahl-Wostl, 2007; Pahl-Wostl & Hare, 2004).

The Ministry for Regional Administration and Local Government under the Prime Minister's office is another organ with fundamental roles for forest extension services in the country. Local government authorities were identified through their local councils by the PFM guidelines as key operational partners for the execution of PFM interventions (United Republic of Tanzania, 2007a). It was envisioned that the regional authorities would work in collaboration with sector ministries for the integration of sector policies into local development programmes. The forest and beekeeping division and Tanzania Forest Services work with village councils through the respective district councils in implementing PFM projects in the country. The local government standing committees within regional authorities can be adopted for extending services at district, townships and village levels. Thus, the standing committees for environment were adopted by PFM projects to serve as forest committees (United Republic of Tanzania, 2004a, p. 305). The local committees serve as representative bodies for communities in project participation, decision making and overall governance of local resources.

Thus, the local government authorities at regional and district levels are serving as technical arms of government programmes for the village level. The government invited partnerships with local executant agencies from NGOs, private sector, research institutions and other forms of service providers (United Republic of Tanzania, 2010, 2007a). The executant agencies function as local facilitators of Participatory Forest Management activities at grassroots level and they are guided by their own organisational policies and strategies. Thus, forest learning in communities across the country is guided by a multitude of frameworks, strategies and regulations at various levels of social engagement. The description of infrastructural linkages for forest governance in Tanzania by Milledge et al. (2007) demonstrated the interdependency in various social-political aspects of forest governance and the relevancy of cross-sector management:

> In addition to MNRT and PMO RALG, forest management in Tanzania is also dependent upon a range of other sectoral policies and actors. For example, PFM is dependent on land tilling (Land Act, 1999 and Village

Land Act, 1999) and the enactment of village by-laws (Local Government Miscellaneous Amendments Act, 1982), all of which lie outside the jurisdiction of FBD. (Milledge et al., 2007, p. 30)

This observation by Milledge et al. (2007) expresses the inter-sectoral links and reliance in achieving partner integrations in PFM projects. The following section provides a short description of the Wildlife Conservation Society of Tanzania, an NGO responsible for facilitating the REDD project in the PKFR community following other PFM interventional activities.

### 1.3.4    The Wildlife Conservation Society of Tanzania

The Wildlife Conservation Society of Tanzania (WCST) was founded in 1987 as a national non-governmental organisation. It later grew to a reputable organisation for the facilitation of conservation practices in communities around the country (WCST, 2009). The organisation obtains its strengths from being a charitable and non-profit organisation. The Wildlife Conservation Society of Tanzania is one of the strongest NGOs in the country with members (both national and international) fluctuating between 1500 and 2000 in 2009 (ibid.). The organisation supports government initiatives for promoting a sustainability agenda concerning wise use of natural resources. It conducts sustainability projects in rural communities aiming at improving rural livelihoods with a focus on protection and conservation of species habitats. The organisation was (and still is) a Birdlife International Partner in Tanzania during the period of PFM implementation at Pugu and Kazimzumbwi and the REDD project. Through the Birdlife International partnership the organisation works in collaboration with many national and international organisations. For instance, the Wildlife Conservation Society of Tanzania collaborated with the Swedish Society for Nature Conservation in a coastal forest education project for the PKFR community (1995-1998). In 2000 and 2001 the project initiative was reviewed to align with the Joint Forest Management policy. The coastal forest education project was then changed to a joint forest management project. The joint forest management-oriented project was adopted for implementation through partnership with a larger Misitu Yetu[2] project (2000-2005). The Misitu Yetu project was focused on conservation and development in the coastal forests and eastern arc Mountains of Tanzania (Kaale & Mwakifwamba, 2006).

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[2] The term *misitu yetu* means 'our forests' in Kiswahili.

The Wildlife Conservation Society of Tanzania initiated the first wildlife clubs in two schools in the PKFR, through the coastal forest education project initiative. This occurred alongside the establishment of a couple of community environmental groups for women and youth, capacity building initiatives for school teachers, and advocacy campaigns for community members. In 2010, the Wildlife Conservation Society of Tanzania collaborated with the Danish Outdoor Council and introduced the Eco-School pilot project in Tanzania. The pilot project for Eco-Schools started with fifteen schools, ten from the Pugu and Kazimzumbwi community and five from the Kinondoni district in Dar es Salaam. In the same year, the Wildlife Conservation Society of Tanzania was engaged in piloting the project for Reduction of Emissions from Deforestation and forest Degradation (REDD) at the Pugu and Kazimzumbwi Forest Reserves community.

Since 2005, the Wildlife Conservation Society of Tanzania has been structured by a governance system that involves an Annual General Meeting, a Board of Trustees, an Executive Committee and a Secretariat. The Annual General Meeting comprises of all members of the organisation and is the highest organ for decision making on all matters of the organisation. The role of the Executive Committee is to supervise the implementation of all decisions and directives of the Annual General Meetings. The Committee is composed of twelve members: the Chairperson, Vice Chairperson, Honorary Secretary, Honorary Treasurer and eighteen other members who are democratically elected at the Annual General Meeting. The secretariat of the Wildlife Conservation Society of Tanzania is headed by a Chief Executive Officer. The Head of the secretariat is backed by technical staff, varying in number depending on functional programmes and projects. The secretariat is the working arm of the organisation.

In 2009, the Wildlife Conservation Society of Tanzania was among the few national NGOs that were invited by the National REDD Task Force to participate in piloting the REDD project in the country. The preparation for the piloting of REDD followed the signing of REDD partnership intentions between the government of Tanzania and the Royal Norwegian government in April 2008 (United Republic of Tanzania, 2009). This included a commitment to funding from the government of Norway to support the pilot projects, which were implemented alongside other REDD initiatives in the country (Burgess et al., 2010). The piloting of the REDD project started in 2010 in nine rural community sites in the country, which included the Pugu and Kazimzumbwi community facilitated by the Wildlife Conservation Society of Tanzania.

### 1.3.5 Piloting the REDD project in PKFR community

Reducing Emissions from Deforestation and forest Degradation (REDD) is a mechanism proposed by the United Nations Framework Convention on Climate Change for addressing global temperature increase. The REDD strategy for lowering global temperature is based on reducing emissions of greenhouse gases by lowering deforestation and forest degradations (United Republic of Tanzania, 2009). With time, REDD accounted for additional strategic processes in sustainable management of forests and enhancement of forest carbon stocks and became known as REDD+ (United Republic of Tanzania, 2012a). The options assessment report of 2012 by the government of Norway highlighted that REDD chose to stick to monitoring deforestation and forest degradation because the impacts of those two practices in lowering global emissions was significant (Angelse et al. 2012). The estimated effects in lowering emissions by reduced degradation and deforestation was nearly 18% of total global emissions (ibid.). Thus, the report regarded REDD as a win-win opportunity for partnerships between developing countries and industrialised countries, where carbon emissions became the object of trade exchange. The deal was to let developing countries implement REDD activities for enhancing carbon stocks, while the costs of carbon stock enhancements was charged to industrialised countries (ibid.). The REDD process in Tanzania is largely funded by the government of Norway. The funding supports basic preparatory processes that include preliminary measures before engaging in the real REDD business (Burgess et al. 2010, p. 340). Among the REDD preparatory processes, were nine sub-national pilot projects, which were designed for piloting REDD in the country (ibid.).

***Figure 1.3: The Tanzania conceptual programme for REDD+ in terms of production chain in the Tanzanian context (Source: Burgess et al., 2010)***

Burgess et al. (2010) describe the structural modelling of REDD+ processes in Tanzania as the REDD+ production chain. The model assumes a systemic flow of processes between four units of productions that are described in **Figure** 1.3. The production chain can start at any unit in terms of importance, but for convenience of flow it should start with *regulation and governance.* This is the unit where some national level preparatory measures were enacted before the country engaged in REDD business. The *regulatory and governance* unit is then followed by the unit for *sustainable forest management at field level.* The field level practices serve as the real forest lands and rely on locally-based capabilities for implementation of forest resource management practices. This is the unit in which community learning is emphasised in aspects such as people's understanding of forest management issues, terms of trading, forest ownership and institutional support. The third unit of the production chain is *benefits,* which is responsible for synthesising relevant funding schemes as potential customers of carbon stocks in the country. This is basically a stockbroker's unit. The unit for *actual markets* is the space where carbon producers can meet carbon buyers or customers for trading. Trading of carbon is to align with business contracts and terms of agreements. The

entire REDD+ production chain displays needs for learning and social adjustments at different levels of stakeholders and policy engagements. The learning needs and particular capabilities for the adoption of new arrangements of working are described critically in Burgess et al. (2010). They described the expected performances of stakeholders as stakeholders committed to the implementation of REDD activities in Tanzania. Burgess at al. (2010) noted the following:

> These interventions aim to mitigate greenhouse gas emissions, provide an income to rural communities and conserve biodiversity … Additionally, for REDD+ to succeed, current users of forest resources must adopt new practices, including the equitable sharing of benefits that accrue from REDD+ implementation. (p. 340)

In this research I focus on the provided opportunities for community learning throughout the systemic route of practising the itemised process in the REDD mechanisms. The research is also informed by the proposal for piloting REDD at PKFR that envisages application of adaptive management in the implementation strategies (WCST, 2010).

## 1.4 THE HISTORY OF COMMUNITY LEARNING IN TANZANIA

This section contemplates the deeply rooted experience of Tanzanian education systems for promoting community learning and other inclusive learning trajectories. The description of community learning in the perspective of this study is also mindful of Education for Sustainable Development (ESD). Education for Sustainable Development is relevant to community learning since it is officially adopted in the country to strengthen and support Environmental Education and conservation of nature from the early 2000s. Focal desks for ESD at national levels were designated by the Vice Presidency Office, which is mandated for all environmental matters in the country, and by the Ministry of Education and Vocational Training, as overseer of educational matters.

Community learning was explicitly advocated for the first time by Mwalimu[3] Julius Nyerere in the early seventies, when he proclaimed a policy of Education for Self-Reliance. The Education for Self-Reliance policy of 1974 instituted education systems that focused on learning for livelihood development (Nyerere, 1974). Nyerere's (1974) mission was made

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[3] *'Mwalimu'* is a Kiswahili word for 'teacher'. The first president of Tanzania, Julius K. Nyerere, chose 'Mwalimu' for his formal salutation firstly, because he was a teacher by profession and, secondly, because he did not like the usual political salutations like 'Excellency' or 'Honourable'.

explicit when he applauded the pre-colonial African education system, which he argued was not structured for formal schooling.

> They learned by living and doing…In the homes and in the farms they were taught the skills of the Society, and the behavior expected of its members…The values of the Society were transmitted. (Nyerere, 1974, p. 2)

Thus, Education for Self-Reliance was intended to orient the frameworks of education to serve the immediate and relevant needs of Tanzanian lives in its tender age of independency. The education systems, and most importantly the learning processes, were to focus on production of knowledge that popularised the relevance of Tanzanian contexts in people's lives (Nyerere, 1974). The main objective of Education for Self-Reliance is to integrate the relevant values of society into formal education. The 1974 Education for Self-Reliance policy aimed at promoting and propagating cultural and heritage knowledge through formal education. Thus, learning in Education for Self-Reliance was focused on creating learner agency and an understanding of the country and awareness of the environment. The expectation was that such agency could build individuals that are rational in decision making (Makundi, 2003). They could also effectively engage in solving local problems and master their own lives with less dependency on the outside (ibid.).

Education for Self-Reliance is relevant to the objectives of current frameworks of Education for Sustainable Development in that it is holistic education believed to occur in different walks of life (Makundi, 2003). ESD advocates skills and knowledge that enable individuals to make informed decisions and to act on the decisions for the interest of present and future generations (UNESCO, 2003, 2007; United Republic of Tanzania/UNEP, 2012). Thus, learning is expressed through the integration of values and activities that enable learners to become better citizens (UNESCO, 2004, 2007, 2014). From the core focuses of the two educational policies (Education for Self-Reliance and Education for Sustainable Development) emerge matching interests in advocacy frameworks, although one is locally framed, while the other is globally focused.

Education for Self-Reliance in Tanzania was extended to secondary school levels, where special schools were established to cater for specific targeted career development, such as military and leadership, agriculture, technical and business (Maembe, A., personal communication, September 2007). In 1977, the country also proclaimed a campaign on Universal Primary Education and adult literacy. Ishumi (1994) described the aim of

interventions in universal primary education and adult literacy:to improve citizens' knowledge and livelihood skills. The campaign was intended to increase child enrolment in primary schools. It especially focussed on increasing access to education for groups that were previously excluded from formal education, including girls and women (Sabetes, Westebrook,&Hernandez-Fernandez, 2012).

Adult literacy pedagogy was largely based on numeracy, civics, health and production skills, such as agriculture, fisheries and livestock (Ishumi, 1994; Sabetes et al., 2012). The teaching and facilitation of adult literacy was spread through social centres in villages. Spaces were also created through talks at health centres, political meetings and media, particularly newspapers and radio (ibid.). Lupele and Lotz-Sisitka (2012) identified the significance of adult literacy as a worldwide movement for supporting sustainable development (see also UNESCO, 2009). Lupele and Lotz-Sisitka (2012) highlighted the important role of literacy for women and mothers in mentoring children and youth. They described literacy in women as important for the future sustainability of societies.

In Tanzania issues of sustainability and Education for Sustainable Development are to date widely represented across sector policies, action plans, strategies and development frameworks (United Republic of Tanzania/UNEP, 2012). An example of infusion of sustainability concepts in the forest sector is the Tanzania Forest Action Plan (1994), described in section 1.3.3, in which Participatory Forest Management was made explicit. Other resource sectors contributed to sustainability education by managing components of environmental resources through the integration of communicative strategies. Outreach programmes for rehabilitation of resources, such as water sources, land, agriculture and other natural resources, were integrated in sector management programmes (Maembe, A., personal communication, September 2007). The regional administrative and local government, as described in section 1.3.3, function as key operational partners in outreach interventions. Outreach services in the country are extended through research institutions, development institutions, line departments and agencies, local NGOs, Civil society organisations, and village communities.

Over the last decade, certain regional initiatives have contributed in re-shaping sustainable practices in the country. Two prominent regional programmes that influenced Education for Sustainable Development were the SADC Regional Environmental Education Programme (SADC-REEP) and the Nile-basin Initiative. Lupele and Lotz-Sisitka (2012) described the

Nile Transboundary Environmental Action Project as an effective initiative for the integration of Education for Sustainable Development practices in riparian member states. They praised the project for encouraging integration of water-related action projects in communities along with orienting educational curricula for water development knowledge (ibid.). Tanzania further integrates water development education in local communities through local projects in the region of Mwanza. Asfaw (2006) reported success stories of Nile-basin projects in Tanzania by describing projects in biological control of water hyacinth, cat fish gardening, water quality monitoring, rain water harvesting and school campaigns.

The SADC Regional Environmental Education Programme has also actively promoted Environmental Education and Education for Sustainable Development capacities in the SADC region. The main components of SADC Regional Environmental Education Programme include Environmental Education and ESD networking, training of practitioners, production of learning support materials, research and ESD policy. The programme has contributed to building the capacity of a wide range of institutions in Tanzania, among other countries. Capacity building programmes are conducted through different levels of training for practitioners, such as relevant sector departments, institutions and NGOs. The establishment of the first Regional Centre of Excellence (RCE) for ESD in Tanzania is one of the tangible outputs of the networking initiative of the SADC Regional Environmental Education Programme. The network of the Regional Centre of Excellence in ESD in Tanzania was established in 2013 for the greater Dar es Salaam region. The basic objective of the regional RCEs is to network with local and regional initiatives and practices for Education for Sustainable Development that directly addresses local sustainability issues. This approach is aimed at building local contributions towards solving global environmental problems. At international levels, RCE networking serves as a global learning space for sustainable development issues (United Nations University,2013). RCE learning spaces are configured to facilitate local research and community innovations for addressing sustainability. The United Nations University Institute of Advanced Studies emphasises the importance of local innovations for addressing the objectives of the UN Decade of Education for Sustainable Development (2014-2015). The history of community learning in the context of participatory management of forest resources at the Pugu and Kazimzumbwi community can be traced back to the 1980s. Burgess and Muir (1994) acknowledged the development of local research during the 1980s in the coastal forests and noted a systematic documentation of the research results. A breakthrough for research on the Pugu and Kazimzumbwi forests was

marked in the 1990s when extensive inventories of ecological disturbances in forests were conducted. The inventories aimed to explore and identify contextual conditions of the Pugu and Kazimzumbwi forests in relation to social-cultural and economic development of the community (Mialla & Kijazi, 2003). Following the results of the inventories, a number of strategic projects were developed for Integrated Conservation and Development (ibid.). Local implementation of the projects was facilitated by a consortium of NGOs, including Care-Tanzania, Wildlife Conservation Society of Tanzania (WCST) and Tanzania Forest Conservation Group. These NGOs worked in collaboration with government through the Forest and Beekeeping Department of the Ministry of Natural Resources and Tourism. The collaborations were extended to local communities through local district councils (ibid.). One of the outcomes of the integrated development conservation projects in the coastal forests of Tanzania during the time of my research included community networks of forest conservation around forest-adjacent populations. These networks are abbreviated in Kiswahili as MJUMITA (*Mtandao wa Jamii wa Usimamizi wa Misitu Tanzania*).[4] Other outcomes of integrated development conservation projects included some functional village environmental committees, school wildlife clubs, forests and village boundary demarcations, as well as the existing village conservation banks and credit schemes. Integrated development projects are also acknowledged by other conservation initiatives for providing a database for other conservation frameworks and strategies around coastal forests in Tanzania (United Republic of Tanzania, 2009). Integrated development projects documented the results of the various inventories in several of their project's work reports, Participatory Rural Appraisal reports and survey documents. Included in these lists of documents was a systematically compiled compendium of Coastal Forests of Eastern Africa, which provides a reliable database for Eastern Africa Coastal Forests (ibid.). In summary, both policies, i.e. Education for Self-Reliance and Education for Sustainable Development have a focus on community learning with an interest in wise management of the local environment and wellbeing development as described in section 2.3 and 2.4

## 1.5 RESEARCHER'S MOTIVATION FOR THE STUDY

> Who among us is an expert on the human experience? We have only the gift of sharing perspectives that hopefully can help those on their journey. There is no such thing as an expert in human experience. The human experience is an experience in movement, and thought and form, and in

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[4] A further description of MJUMITA can be found on www.hppt://mjumita.org.

some cases, an experiment in movement and thought and form. The most that we can do is comment on the movement, the thought and the form, but those comments are of great value if they can help people to learn to move gracefully, to think clearly, and to form – like artists – the matter of their lives. (Zukav, 1991, Foreword)

In 2004, I started working with the Wildlife Conservation Society of Tanzania and was put in charge of the Environmental Education and awareness section. Through that job I consciously engaged in what Zukav (above) described as the experience of experimenting in the "movement of thought and form" (Zukav, 1991, Foreword). This process had a double impact on my learning. First, I was embarking on a personal journey of experiencing and experimenting with my own professional movement through commenting on and contributing to the experiences and experiments of others. Secondly, my comments on other people's experiences and experiments could find ways of helping others to learn to master their own livelihood issues.

My role as an educator in a conservation organisation was to manage learning programmes and projects at different community levels. Through that position I acquainted myself with various human practices within individuals and communities. As a professional science educator, I had little exposure to social-critical orientations to learning. Thus, I adopted the conventional frameworks of Environmental Education methods, which, by the 2000s, dominated Environmental Education modules in NGOs' work. Some of the outreach projects that I conducted for Environmental Education involved the organisation of teacher's networks, community learner groups, and capacity building by using tailor-made programmes. I also engaged in awareness raising campaigns for strategic public learning. This included popularising conservation priority themes through international and national campaigns, such as world environmental days, wetlands days and world migratory bird days. Public campaigns also involved community groups in practices such as cleaning of beaches, birdwatching, and visiting museums and botanical gardens. More publicity was created through the production of print materials, such as posters, newspaper articles, T-shirts, artwork, and media coverage. Schools were a special category of community for Environmental Education and learning interactions. Professional practices occurred through the development of Environmental Education curricula for environmental teachers, who were patrons or matrons of wildlife clubs.

What happened in conservation learners' communities is part of what drives my desire to further understand human experience. I am interested in broader human mechanisms for

reorienting thinking, beliefs and actions towards new practices, and I am concerned with the creation of individual and community agency to adjust to new worldviews. When I entered the field of Environmental Education, I made the effort to get to really know the existed epistemic culture for Environmental Education in the organisation and amongst collaborating organisations. This was critical for finding my own space in the realm of managing changes in human lives.

My search to understand human changes started in my early childhood. I grew up with an introvert personality. Littauer and Sweet (2011) would classify me as melancholy based according to Hippocrates' philosophy of classic temperaments. As a child I already felt the urge to understand the nature of human personality in terms of human thinking and human actions. Around age twelve I was already obsessed with thinking about people's ways of thinking, their ways of reasoning and their ultimate intentions and actions. I was therefore not a very pleasant child in the eyes of those adults who wanted to control children's actions. I was passive and inexpressive and many adults, including some of my early teachers, complained about my withdrawn state to my parents.

After my undergraduate degree, I became acquainted with Zukav's (1991) spiritual learning, including the term *human spirit*[5] which seemed to match my interests in being human. Zukav (1991) regarded human psychology as part of human spirituality and human growth and development. This understanding resonated with my professional work in environmental education. I became more interested in this again in 2005 when I was introduced to the concept of Education for Sustainable Development (ESD) through an International Training Programme in Sweden and later in South Africa. The process of coming to understand ESD pedagogy and the mechanisms for ESD learning processes seemed to resonate with this more holistic view of human development as put forward by Zukav (1991).

As part of my job at the Wildlife Conservation Society of Tanzania, I initiated an ESD teachers' network to support environmental teachers, who were patrons and matrons of Wildlife Clubs, to orient their professional approaches to ESD learning. The teachers' induction programme to ESD involved ten primary schools, four secondary schools and a couple of teacher trainees from the Dar es Salaam University College of Education. Teacher workshops were conducted every three months when ESD themes were facilitated and

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[5]The word 'Spirit' is described by Oxford Advanced Learner's Dictionary as a state of mind of a person or a person's feeling (Crowther, 1995).

teachers shared their school learning experiences. I worked with 28 teachers from 14 schools for the ESD induction, which lasted for 18 months between 2006 and 2007. In 2010, I coordinated initiatives for the establishment of a Regional Centre of Excellence for ESD in the greater Dar es Salaam region. In this work, I continued to explore the possibility of education and its relation to Zukav's (2010) concept of human 'transformation', which has also helped me to conceptualise transformative learning. Human transformation, as described by Zukav (2010), refers to changes in individual conceptualisation, which could involve changes in an individual's philosophy. Although he refers to spirituality, he emphasises that this has nothing to do with religiousness.

I deepened my understanding of transformative learning after embarking on this PhD journey in transformative social learning, which has helped me to deepen and expand the individual transformation view of Zukav (2010) into a stronger social framework. The introduction to critical realism philosophy was very helpful in this regard. Most concepts and theories of learning do not directly talk of spirituality, but are more oriented towards transformation of desires or actions. My encounter with meta-realist theoretical perspectives helped me to relate the concept of spirituality as used by Zukav (2010) to transcendental views of transformative learning that show that not all of what we know is cognitively imbued at the individual level (Dirkx, Mezirow, & Cranton, 2006; Dirkx, 2000; Bhaskar, 2011; Capra, 1975).

## 1.6  KEY CONCEPTS IN THE STUDY

This study uses the term 'transformative social learning' to reflect on learning processes that manifest in communities through conscious and culturally embedded changes in individuals' perspectives and actions when interrelating with new practice (Kemmis et al., 2014; Wals, Van der Hoeven, & Blanken, 2009; Wals, 2007; Dirkx et al., 2006; Mezirow, 1998). Interpretations of transformative social learning in this research were based on the nature of living and learning about forests as experienced and observed in the community of Pugu and Kazimzumbwi Forest Reserves. Indicative features of transformative social learning were interpreted by abductive and retroductive analysis drawing on social realist theory and social learning theory. Wals et al. (2009) described learning in complex social-ecological community interactions. They revealed the likely dynamics within such interactions to include patterns of unforeseen changes and the relation between these and increased risks for livelihood and uncertainty (see also Kagawa & Selby, 2010; Wals et al., 2009; Wals, 2007). Wals et al. (2009) worked with the concept of a 'risk society' (originally sourced from Beck,

1992) and drew scholarly attention to the importance of social learning processes in mediating sustainability issues in social-ecological communities. They emphasised the importance of social learning for risk societies. They recommended social learning for increased flexibility of communities to cope with diversities amidst complexity in social-cultural and political dynamics. Social learning is suggested for attaining reflexivity in societies to strengthen capabilities for questioning routines and rethinking of ideas (Wals et al., 2009; Wals, 2007). Capra (2007) pointed out cases of transformative community-based learning in which social learning processes transited from skill competences to manifest in development of emotional competences. Van Dijk and Van Dijk (2012) suggested that there is a relationship between community learning experiences and self-regulatory mechanisms, which allows reflexive forms of transformative learning to occur. Their study focuses on transformative learning processes in a group of peasants in Mexico who acquired changes in resource management. Similar findings on reflexive social learning are also reported in the southern African region by Mukute (2010), Masara (2011) and Kachilonda (2014). Van Dijk and Van Dijk (2012) pointed out that the changes were more than knowledge-based changes as they involved changes in people's perspectives and values, a point that is also confirmed by the southern African researchers referenced above. My research draws on the highlights of community-based learning, social and transformative reflexive learning theory in coping with social-ecological complexity and essentially works with three concepts of learning in the Pugu and Kazimzumbwi community. The three learning concepts are social learning, transformative learning and social practices. Other concepts that also informed this study include Environmental Education (EE), social ecology, forest enforcements, forest incentives and the concept of philosophical 'underlabouring' of the study. These are explained in section 1.6.4.

### 1.6.1 The concept of social learning

Social learning has been acknowledged as a learning paradigm that presents new learning landscapes, emphasising the open-endedness of the learning process (Reed et al., 2010; Wals & Corcoran, 2012; Cundill, Cumming, Biggs & Fabricius, 2011; Wals et al., 2009; Jackson, 2008; Palh-Wostl, Mostert & Tabara, 2008; Wals, 2007; Keen, Brown & Dyball, 2005). Social learning is defined by Wals (2007) as emerging from contextually-constructed learning in open systems. The term social learning also reflects human to human interactions,

collaboration in learning and the role played by flexibility in responding to life challenges (Capra, 2007).

Wals and Van der Leij (2007) suggested that social learning embodies different levels of contexts, such as individual, community, network and organisation levels. The common tenet of social learning is to create learning competence that promotes people's capabilities in resolving critical issues in their local environments, either as individuals or collectively (ibid.).

Glass et al. (2012) and Reed et al (2010) described social learning for enhancing interactions and mutual learning across several individuals or networks that address local sustainability issues. Reed et al. (2010) noted the possibility of reflexive learning processes as individuals critique their own assumptions. They identified such reflexive moments as enhancing transformative learning (ibid.). This present study benefited from these definitions of social learning, as also quoted below, for the convenience of mapping out learning indicators, described in section 3.3.5.

> As such, social learning may be defined as a change in understanding that goes beyond the individual to become situated within wider social units or communities of practice through social interactions between actors within social networks. (Reed et al., 2010, p. 6)

### 1.6.2 The concept of transformative learning

Transformative learning was first introduced in 1978 by Jack Mezirow, as a result of his study on adult women learners in United States community colleges (Mezirow, 2009; Kitchenham, 2008; Mezirow & Associates 2000; Taylor, 1998). Mezirow defined transformative learning as a learning process through which adult learners engage with critical reasoning, which often leads to rational examination of their frames of reference through validating the relevancy and consequences of their aspirations, before making informed choices (Mezirow, 1998, 2003, 2009). The transformed assumptions are assumed to encompass people's worldviews and to be inclusive in the sense that they involve learner's capabilities in reflexive thinking about several optional ideas before construing the most reliable option under the circumstances (Mezirow, 2003; 2006; 2009). Transformative learning is also seen as an open and emotionally inspired process for enabling individual changes which Mezirow (2000; 2009) described as 'perspective transformations':

*Perspective transformation* is the central learning process occurring in the personal development of women participating in these college programs. By becoming critically aware of the context -biographical, historical, cultural-of their beliefs and feelings about themselves and their role in society, the women could effect a change in the way they had tacitly structured their assumptions and expectations. This change constitute a learned Transformation; the process resulting from it was designated transformative learning … (Mezirow 2000, original emphasis)

Further works in advancing practices and theoretical approaches for transformative learning are explained in section 2.6.5.3.

### 1.6.3 The concept of social practice

Over the years, social learning studies diversified to include conservation contexts and more recently they have signalled the relationships between learning sociality and practice dynamics (Hargreaves, 2011; Kemmis & Mutton, 2012; Kemmis et al., 2014). This present study adopts the logic of learning sociality as emerging from social practice dynamics that transpired in forest management in the Pugu and Kazimzumbwi community. Opportunities for learning as part of human sociality could emerge from social dynamics and changes within intersubjective spaces of practice arrangements (Kemmis & Mutton, 2012; Kemmis et al., 2014).

The term 'social practice' originally emerged from the frameworks of social practice theories, which evolved at different times and contexts of social science development. As a result, the conceptualisation of practices is not identical across the various studies of practices, and it even varies within the work of individual scholars over time. However, the core of many recent studies is the work of Schatzki (2001). Schatzki (2001) described a practice that constitutes bodily activities, non-bodily (mental) activities and background knowledge in the form of understanding, including states of emotions. Schatzki (2012) conceptualised practices from people's activities and their use of language in talking and thinking about these activities. He also recognised practice from the works of Kemmis, which identified people's relations and social-political positions in doing activities as essential. Thus, these components of practices were broadly characterised in three dimensions of doings, sayings and relatings (Schatzki, 2001; Kemmis, 2009; Kemmis &Heikkinen, 2011; Hargreaves, 2011; Kemmis & Mutton, 2012; Schatzki, 2012; Kemmis et al., 2014).

### 1.6.4 Other Concepts used in the research

The concept of Environmental Education (EE) was usein this study as an umbrella process for fostering ecological/environmentalknowledge, awareness, training and capacity building (McCrea 2006; Disinger 2005). This concept is further discussed in section 2.6.4. The concept of social ecologyused in this study reflects on management paradigms that understand the existing interactions between social-cultural systems and ecological conditionsthat prevail (Stokol, Lejaro & Hipp 2013). Social ecology is further discussed in section 2.6.4.1.The concept of forest enforcements was used to describe the technical practices employed by forest managers in implementing management frameworks such as forest rules and guidelines (Albers and Robinson, 2011) as discussed in section 2.7. Forest incentives, also discussed in section 2.7, were consideredby this study as income generating schemes that are combined in forest management enforcements in order to motivate local people's conservation actions and lower people's dependence on wood resources (Sanderland and Ndoye, 2004). The concept of 'underlabouring', discussed in section 3.1 was used to indicate supportive lenses or philosophical perspectives that underpinned research arguments such as methodology, framing of ideasand explanations (Archer, 1995; Danermark, 2002). This current study employed the philosophy of critical realism (explained in 2.8.2 and 3.2) to underlabour the processes of research.

## 1.7 RESEARCH DESIGN AND METHODOLOGY

This study is designed and conducted as qualitative case study research. The choice of methodology is determined by the nature of the object of study, which is transformative social learning. The research seeks to study socially and contextually constructed learning that occurs in complex interactions between humans and their immediate forest ecology. The occurrence of this kind of learning is undetermined as it is embedded within social beings and social practices. To surface this learning and its complex dynamics, in-depth qualitative methodologies used in case studies were deemed the most appropriate. Thus, the research questions are reflective of the social and natural contexts of people's experience of forest learning.

### 1.7.1 The methodology framework

The choice of methodology was guided by the immanent critique of the characteristic nature of community learning and the empirical assumptions held by individuals on forest learning

at Pugu and Kazimzumbwi (Cruickshank, 2003)(see section 4.3). The object of study manifests itself in relational ontology and is therefore expressed in relational assumptions and inquiries (Danermark, Ekström, Jakobsen, & Karlsson, 2002). Immanent critique which literally implies an in-depth contextual analysis of the object of study, allowed me to shape the conceptual frames of the study to understand key learning issues that exist at the Pugu and Kazimzumbwi site. For instance, it discloses local contexts and micro-politics, e.g. the influence of social-cultural, political and economic conditions in the learning (Yin, 2004, 2009, 2012; Denzin & Lincoln, 2008; Maxwell, 2012). Immanent critique surfaced issues of social well-being and accessibility to social needs in the community, such as literacy, education, health, infrastructures, markets, safety, employability and other estimates of development relative to the larger Tanzanian society. It also helped to identify the roles of the PKFR community and its interaction with learning in previous research and projects (Yin, 2009). The critiques on the characteristic nature of previous learning in the community also suggest the theoretical ontology and epistemological frames from which to view learning issues at PKFR community as described in section 3.2. The detail of methodological framework and research design are presented section 4.2 and 4.3.

### 1.7.2 Overview of research process

The conceptual profile of the site, explained in section 4.4.1, was created to identify contextual conditions that informed site sampling. Three sub-sites were sampled for this case study research. The study was conducted through two investigative processes. The first investigation process was conducted in 2013, using multiple method inquiry to explore learning from people's experiences on changing forest practices. Two rounds of face-to-face interviews were conducted in 2013, which was supported by an analysis of documents and archival records, as well as two focus group discussions.

The second investigation process was conducted in 2014. The process was initially designed to employ both direct observations and participant observation methods of the REDD project mechanisms. However, the inquiry methods changed during the research process in order to adjust to contextual changes in the REDD project at the site. The details of the changes are described in section 4.4.3.4. For instance, the method of participant observation was adjusted to introduce an interventionist workshop with research participants. An interventionist reflexive workshop was used to mirror the data of the first investigation process for participants to member check and elaborate on as described in section 4.4.8.2. The workshop

also performed a reflexive validation of the REDD project mechanisms for adaptive management (section 4.4.8.3)

The data analysis was performed on two levels. Level one entailed an empirically based analysis. It included a retrospective analysis of time-annotated events to produce *ex post facto* evidence for historical events in forestry and past learning experience at the site (Rodela et al., 2012). Chronologies of forest events were used to develop a roadmap of changes through which learning events were explored from changes in forest management practices. Five indicators of learning, as shown in sections 3.3.5 and 5.2, were used to guide the analysis of learning from forest events.

Level two of the analysis involved inductive inference from empirical data to categorise community narratives into patterns of learning insights (Maxwell, 2012). Inductive interferences were also made to analyse characteristic inter-relations of adaptive collaborative approaches for the REDD project, before using indicators of learning to abductively discern learning insights from people's collaborative deliberations. Multi-modal analysis of learning potential, including observations of material realities (such as bodily gestures and actions) and non-verbal communications and relations, was undertaken from field evidence in the inquiry process (Mondada, 2008).

The analysis of data was informed by critical realist ontology and two meta-theories, which were used to frame the theoretical assumptions for the development of explanatory arguments. Realist social theory and social practice theory were both used methodologically and philosophically to enhance the explanatory power of analogical inferences, as explained in section 4.5.1 and also demonstratedin Chapter Seven. The main analytic method for re-describing and re-defining learning insights through the meta-theories involved the use of abductive and retroductive modes of inference, as explained in sections3.3, 4.5.1.2 and 4.5.1.3.

*Table 1.2: Table summarising the research methodological process*

| Research process | Phase one | Phase two | Chapters |
|---|---|---|---|
| Research design | Questioning the project ideas, contexts, concepts and their appropriateness for the methodologies and theories. | Continuous re-questioning and mapping of the study, as advised by Maxwell, (2012) for critical realist research. | Chapters 1, 2, 3 and 4 |

| Profiling study | Physical access of the research site (August 2012) for site sampling and testing of methodologies and logistics. | Responding to field findings by re-addressing changes in the research design according to the context. | Chapter 4 |
|---|---|---|---|
| Field work | Data collection for the first investigation process in March and August 2013: ten interviews, two focus group discussions, direct observations, audio and video recordings and direct observation. | Data collection for the second investigation process in May/June 2014: mirroring of data and reflective feedback, direct observations and one interventionist reflective workshop. | Chapters 3, 5 and 6 |
| Analysis | Annotation of timelines, modelling of indicators of learning by analytical inductions and retroduction on the identified evidence. Writing thick descriptions. | Re-describing results using theoretical lenses. Abduction and retroduction of learning processes through realist and practice theories. | Chapters 5, 6 and 7 |
| Research contributions, ethical concerns and validity | Cross-cutting reflections from designing to the writing of the research results. | Consolidation of ethical reflections and framing of the research contribution. | Chapters 1, 2, 4 and 8 |
| Discussion, recommendations and conclusion | Commenting on learning potential and how the potentials were enabled or constrained. Future opportunities and limitations for learning at the PKFR community. | Open-ended conclusions displaying the learning landscapes. Recommendation for future planning on forest education as well as future developmental interventions. | Chapters 7 and 9 |

## 1.8 ANTICIPATED CONTRIBUTION OF THE STUDY

Higgs and Cherry (2009) described one of the essential elements of qualitative research on practices as the opportunity of contributing to new knowledge in the field of human practices.

> By interpreting the lived experiences … in practice (e.g. clients), qualitative research helps to enhance the researcher's understanding of the nature, process and experience of practice. This in turn, allows research findings to enter into and enrich the knowledge of the field. This can be called the illumination of practice. Research in this instance is a means of expanding knowledge about practice and contributing to current practice discourse. (Higgs & Cherry, 2009, p. 10)

This present research explores the practice of community learning by investigating changes in forest management practices. It was undertaken in a context of introduced forest management practices under the REDD project in the Pugu and Kazimzumbwi community.

### 1.8.1 Contribution to knowledge in the field of Environmental Education and sustainability.

The research provides insights for Environmental Education practitioners with an interest in addressing learning and sustainability practices. It illuminates socially-oriented approaches and practices for learning, change and transformations.

### 1.8.2 Contribution to Forest Management planning and practices

The research specifically contributes to knowledge in Participatory Forest Management (PFM) approaches by working through a case example of community learning surrounding two National Forest Reserves in Tanzania.

### 1.8.3 Contribution to Sustainable development Policies

The research contributes insights useful to sustainability planning, project implementation, monitoring and evaluation of learning and change processes in development schemes.

### 1.8.4 Contribution to empowerment of participating local community

Social learning research may also help community members to reflect on their own roles in supporting learning from introduced project interventions. The research participants may be empowered through research interventions to re-assess not only project mechanisms but their own role in shaping the chances of learning from project opportunities (Lather, 1986a). This stimulates responsibility of local actors as well as the accountability of community members to participatory actions.

### 1.8.5  Contribution to research methodology and theory

This research may also contribute to the development of methodological and theoretical frameworks that can be used for deepening social understandings of environmental challenges, landscape management and local agency. It demonstrates how critical theories can be used to underpin socially-reflexive arguments.

### 1.8.6  Contribution to influencing further research

This research employed critical realist tools to inform social issues. Insights from realist perspectives may stimulate new questions for further research enquires, hence the need for employing alternative lenses to view the same object of study. This can potentially create a forum to debate common issues seen from different perspectives.

### 1.9  OUTLINE OF THE THESIS

**Chapter One**: This chapter introduces the study by highlighting the focus, contextual conditions and background situation of the research. The chapter draws a 'roadmap' of the research process by summarising the research design and methodological orientation, key concepts of the study and the anticipated contributions of the research. The chapter also explains the researcher's motivation for undertaking the research and concludes with an outline of the eight chapters of the thesis.

**Chapter Two**: This chapter details relevant issues of community learning in Tanzania from a local and global perspective. It details the evolutional trends of education on environment and how this links to the development agenda. The chapter provides a deeper explanation of the key research concepts and describes their links to contexts of social ecology, adaptive co-management, climate change interventions, and REDD project mechanisms. The chapter outlines the two lines of forest innovation focus that were followed in this research. These lines of innovation focus are the forest enforcement and forest incentive schemes. Lastly, the chapter introduces the links between the research concepts, the domain specific substantive theory and the meta-theory proposed for the study. The details of the theoretical frameworks are described in Chapter Three.

**Chapter Three**: This chapter describes the philosophical frameworks used to guide the ontological and epistemological orientation of the research. It explains how realist ontology and epistemological orientation inform the research process. The chapter describes realist

social theory and social practice theory as two meta-theoretical frameworks that were used to conceptualise social learning in broader philosophical terms. It also describes a substantive theory that was used to concretise learning issues and establish indicators of learning in the research. The chapter further explains the different precepts of each of the theories and how they were used in combination to describe learning interactions.

**Chapter Four**: The research methodology is described in this chapter. The research was conducted using a qualitative case study methodology. The chapter explains the relevance of qualitative case study for the descriptive characteristic of social learning and the link to the context. The chapter outlines step-by-step the research processes of this study. It describes the field interventions, explaining when, how and why the field processes were performed. The chapter then explains the lessons learned from the fieldwork. It also explains how the research employed different methods of inquiry to strengthen the validity of the data and describes how the data was analysed using two levels. The chapter also describes the three modes of analysis, (i.e. induction, abduction and retroduction) that were used to construct arguments. It ends with a brief explanation of validity and ethical issues in the study.

**Chapter Five**: This chapter presents the findings of the first investigation process. The data for this first process was generated through interviews, analysis of documents and archive records, and focus group discussions. The chapter presents the trend of changes in forest management practices over about 15 years. Changes in forest practices are matched with learning implications in chronological order in four timelines, each covering about five years. Five indicators of learning were used to identify learning insights in the first investigation process. These learning indicators include local people's engagement, change in understanding, coping with tension, motivation/empowerment, and subtle shifts in practices. The chapter uses direct quotes from the data in order to strengthen claims of learning evidence offering thick description which is seen to be important for trustworthiness in case study research. The analysis in this chapter addresses four questions, linked to the first and second specific objectives.

**Chapter Six**: This chapter presents the results of the second investigative process. It describes the results of focus group discussions, which were sorted into four patterns of learning concerns. The insights of learning from each of the four concerns are located using the indicators of learning evidence derived from logical modelling. In this chapter, the results of focus group discussions are used as evidence to support explanatory claims from

deliberations of a collaborative reflexive workshop. The chapter maps the learning interventions in the REDD project mechanisms at the site through reflections on the inter-relational assumptions of adaptive co-management. The chapter addresses the four questions linked to the third and fourth specific objectives of the research.

**Chapter Seven**: The penultimate chapter presents a theoretical interpretation of the results described in Chapters Five and Six. The chapter explains how realistsocial tools of morphogenesis/stasis model, analytical dualism and emergent properties re-describe the empirical interactions and the emergent learning. The chapter describes various generative mechanisms that underlie the reproductions and elaborations of emergent properties of structure, culture and people. This chapter also integrates practice theory to identify practice forms of arrangements of the 'doings', 'sayings' and the 'relatings'. The emerged forms of arrangements could be equated to emergent properties of structure, culture and people. The learning issues that were inductively described in Chapters five and six are re-described and broadly interpreted using abductive and retroductive modes of inference in this chapter. It further shows how meta-theories help to make general inferences from arguments on causal factors that shape participatory project practices at Pugu and Kazimzumbwi.

**Chapter Eight**: This final chapter presents the conclusive results of the research and the recommendations that emerged from this study. In drawing these conclusions, I refer to the potential for community learning that was identified in the research results and recommend possible ways of harnessing such potential for productive and ongoing learning interactions. The chapter also defines the constraints for learning, social change and transformations that transpired at the PKFR during the PFM and REDD project. Learning gaps are made explicit for the identification of alternative educational methods in planning for community learning in social-ecological development.

## 1.10 CONCLUSION

This introductory chapter provided an overview of the research, thus offering a roadmap of the research process. The chapter explained how the research was conducted and in which settings this occurred. It also explained the researcher's motivation for the study, which located the researcher's position as a professional educator as well as a researcher with personal experience and prejudices. The chapter ended with an outline of the eight chapters that constitute the thesis. The following chapter expands on the conceptualisation of learning, which was identified as the object of study in sections 1.6 and 1.7 of this chapter. Chapter

Two provides a deeper description of learning in the context of education and development landscapes. It describes some of the milestones that show the evolution of social learning as a response to global education and developmental thinking.

# CHAPTER TWO: AN OVERVIEW OF EDUCATION AND COMMUNITY LEARNING IN FOREST MANAGEMENT CONTEXTS

## 2.1 INTRODUCTION

This chapter describes the history of education theorisation and the investment in learning in educational schemes. It describes progressive changes in education and learning theorising through which important features of education and learning were debated. The chapter positions the concepts of education and learning in relation to perspectives of development and environmental conservation. There is a focus on trends and changes in the history of education theorisation as they pertain to ensuring environment and livelihood development through education and learning.

Section 2.2 highlights contemporary challenges in perceiving the impacts of education and learning in societies. It also describes how the values and qualities of education and learning in many sustainability schemes and environmental-related developments are doubted by the public. Various policy developments are drawn on in sections 2.3, 2.4 and 2.5 to explain some debatable aspects of education and learning in the past few decades. Some of the main challenges that face global political economies in connection to community learning are also highlighted.

Section 2.6 builds on the history of education theorisation to describe the evolution of social learning theories. The theories of social learning and transformative learning are then examined in the context of natural resource management, where forest learning is contextualised. Thus, the section presents different perspectives of social learning and transformative learning used in the natural resource management, forest learning and climate change context.

The last part of the chapter (section 2.7) describes two forest innovations used by this research to explore community learning in the Pugu and Kazimzumbwi community. The innovations focused on Forest Management Enforcement Practices (FMEP) and Forest Management Incentive Scheme Practices (FMISP). These two lines of forest innovations were employed in both Participatory Forest Management (PFM) and Reduction of Emissions from Deforestation and forest Degradation (REDD) projects for effective management of resources and livelihoods. The chapter concludes with a theoretical account that highlights the ontological and epistemological aspects of social learning as these pertain to the study. In

summary, the chapter shows that educational thinking has evolved as have approaches to forest management, and these both influence community learning in the forest context in complex and intersecting ways that appear to come together best within the framework of social learning, hence the focus on social learning in this study.

## 2.2 EDUCATION AND COMMUNITY DEVELOPMENT

### 2.2.1 An overview of Education and Community Development

Section 1.4 described the history of community learning and development in Tanzania. In the present chapter, I discuss environmental-related forms of education and community development that prevailed at a global scale in the field of natural resource management during the 2000s as also acknowledged by Capra (2005). The country engaged in various community development programmes by managing local resources under integrated conservation and development schemes, e.g. schemes regarding water, land, forests, wetlands and wildlife (Maembe, A., personal communication, September 2007). Many such projects and programmes are implemented in rural communities through conventional Environmental Education schemes using strategies such as advocacy, capacity building and training, information communication and outreach (ibid.). Central to most Environmental Education schemes is the building of capacity of local agencies for extension services and providing institutional facilities for local support systems. The National Environmental Education and Communication Strategy for Tanzania (2005-2009) noted a broad spectrum of Environmental Education programmes in the country by 2004. The strategy described Environmental Education progression in the country as sector-oriented in operation, in which each field of resource specialisation is coordinated by a responsible department or ministry (United Republic of Tanzania, 2004b). The strategy further drew attention to the extensive spread of categorical agencies that facilitated Environmental Education in the country as described in the excerpt below.

> Over 100 civil society organizations (CSOs) popularly known as non-governmental organizations (NGOs), both local and international have awareness, sensitization, lobbying and advocacy programmes. In the meantime the private sector has also been in the forefront to support or carry out EE related initiatives … Many people have regarded the radio as the cheapest and potential means of getting information. To date there are a number of radio and TV environmental programmes, which are either sponsored by media owners or selected environmental institutions. In general terms, the Tanzanian community to date has become more

environmentally aware than before … (United Republic of Tanzania, 2004b, p. 9)

This suggests that there were numerous NGOs and Civil Society Organisations conducting Environmental Education in the country by 2004. It also suggests that the Tanzanian community was increasingly aware of the environment, as a result of the widespread Environmental Education programmes in the country. This could be very true for awareness that is not necessarily applied to learning achievements, as is discussed in sections 2.6.4, 2.6.5 and 2.6.6.

### 2.2.2    Facilitation of Environmental Education and learning strategies

In this study I am partly interested in understanding the process through which communities learn under diverse strategic facilitation of Environmental Education schemes. This section discusses the importance of understanding facilitation strategies that may enable learning potential and the development of education values when rolling out Environmental Education schemes. Firth and Smith (2013) flagged the importance of working with education values when implementing Environmental Education and Education for Sustainable Development programmes (cf. Jickling, 2004). In a similar way, Johnson and Mappin (2005) identified the challenge of selecting effective strategies that may engage communities in education and learning through Environmental Education projects. They first noted the divergent views among education practitioners in understanding the purpose of education, and also noted a lack of consensus in public opinion on what makes 'good' education (ibid.). Jickling (2004) also described a situation where Environmental Education practitioners failed to construe the core purpose of education. In Jickling's (2004) opinion it is a profound mistake for an environmental educator to think about Environmental Education without understanding the value of the core concept of education. For Jickling (2004), the understanding of values and the purpose of education may entirely reflect on qualities of education offered. This brief explanation expresses some confusion in conceptualising core values of education. I therefore suggest that facilitators of Environmental Education should be able to answer basic questions before implementing Environmental Education programmes. Such questions may include: What is the education in the Environmental Education programme? What learning is served by the education? And how is the learning relevantly approached? Finding answers to such questions may help educators and sustainability facilitators in the field to align their Environmental Education strategies with education and learning objectives.

## 2.3 DISCREPANCY BETWEEN EDUCATIONAL AIMS AND HUMAN CONDITIONS FOR ENVIRONMENTAND DEVELOPMENT

This section brings to light a discrepancy in practice when education is expected to catalyse human development and environmental change in order to bring changes to people's well-being. The discrepancy is a challenge that highlights the need for understanding popular links between the 'education' components of development programmes, the processes for and the outputs of the education.

### 2.3.1 Incoherence between education efforts and development outcome

Many sustainability thinkers are writing about the growing incoherence between what is expected of educational aims and the outcome of educational processes in terms of environment and human well-being (Jackson, 2008, 2013; Lotz-Sisitka, 2012a; Wals & Corcoran, 2012; Kagawa & Selby, 2010; Wals, 2007; Jones & Carswell, 2004; Johnson & Mappin, 2005; O'Sullivan, 2001). Jackson's (2008) argument seems to reconcile with O'Sullivan (2001) who specifically remarks on challenges in education mechanisms that fail to hold the sustainability- development scale in balance. Wals and Corcoran (2012) also described the battle between sustainability and economic globalisation by emphasising the role of education and the relevant learning processes in changing human thinking and human choices. Wals and Corcoran (2012) insisted on changing human choices towards 'doing better things' by critically focussing on global economic drivers, which channel more resources into market economies than into sustainability investments. They emphasised the ability of education and learning for re-directing global trends towards economic stability with sustainability equilibriums. They considered this to balance economic productivity with sustainability demands (ibid.).

### 2.3.2 Differing perspectives on development and economy

Jones and Carswell (2004) have described the environment-development dialogue that was defined by the economic divide between the Northern Hemisphere and the Southern Hemisphere in the 1960s and 1970s. Capra (2005) also wrote about conceptualised development regarding environmental conditions during the 1960s where the economic perspectives of northern industrial countries differed from the economic perspectives of southern countries. The political economy of northern countries looked at development as a process of optimising world resources in developing things, including development of other people (ibid.). Meanwhile, the southern thinking of development was that of seeing potential

for gaining knowledge to survive in a natural environment (ibid.). Besides these divided perceptions, Scott and Gough (2003) identified another challenge that dominated the 1960s and 70s as that of changes in environmental conditions around the world. The threats of random changes in environmental conditions were overwhelming and could not be monitored (ibid.). From the consequent frustrations, the concerns grew for a critical role of education in addressing the expanding demand for environmental sustainability and development (ibid.). Environmental Education practitioners were identified for advancing education and learning to cope with unpredictability of environmental challenges (ibid.). Scott and Gough (2003) extended their elucidation by drawing on the valuable insights of Michel Fullan, who doubted the power of education to change complex situations, as described in the excerpt below.

> Understanding why most attempts at education reform fail goes far beyond the identification of specific technical problems such as lack of good materials, ineffective professional development, or minimal administrative support. In more fundamental terms, education changes fail partly because of the assumptions of planners, and partly because solving substantial problems is an inherently complex business. (Fullan, 2001, as cited in Scott & Gough, 2003, p. 56).

Scott and Gough (2003) challenge sustainability practitioners, especially educators, to look deeply into people's diverse backgrounds when assuming a common sustainability agenda. In brief, Scott and Gough (2003), like Jackson (2008) and others, identified the different interpretations and perspective orientations that people may hold towards a sustainability commons. Most sustainability concepts e.g., *green environment, energy saving, reproductive health,* and *forest restoration* may appear to sustainability practitioners as common knowledge. However, the same concepts may connote different things to people in different societies under different social-cultural and economic experiences. The differences in people's understanding of things and conception of meanings, values, and interests to pursue certain social entities may implicate their motives and choices of actions in environmental practices. Both Scott and Gough (2003) and Jackson (2008) advised educators and developmental facilitators to take into account the social-political essentials of people when framing educational goals. With this understanding, sustainability practitioners, including managers, researchers and policy planners, are urged to re-examine their practices in human development. They are encouraged to reflect on the assumptions they hold in education and the learning processes that institute education values for change and development. Jickling (2013) pleaded with educators to re-orient assumptions and practices in managing complexity of education-based challenges. Jickling (2013) called for the reframing of education strategies

to challenge what he called the "normalization of attitudes, values, practices and habits" in the practices of our contemporary societies (p. 162).

## 2.4  BROADER POLICIES FOR ENVIRONMENT AND DEVELOPMENT

The trend of environment and development policy reforms at the global level reflects situational environmental challenges that are linked to contemporary development practices emerging in the world. Many global policy responses for environment and development identify the role of education in the effective mediation of solutions to identified challenges (United Nations, 1987; UNESCO, 2007; UNCED, 1992; see also Lutz, Muttarak, & Striessnig, 2014). The resolutions on Agenda 21 in Rio de Janeiro 1992, broadly outlined the need for re-orienting educational approaches towards environment and development programmes (UNCED, 1992). The Agenda sought to stimulate sustainable planning of environment and development through effective mediation of educational structures and mechanisms (UNESCO, 2014; Scott & Gough, 2004). Agenda 21 was a call for global action in response to the deteriorating state of the environment in relation to human lives, and Chapter 36 encouraged looking for solutions through re-structuring of educational systems. The declaration of the United Nations Decade of Education for Sustainable Development (2005-2014), emerging from the World Summit on Sustainable Development in Johannesburg 2002, was built on the concerns identified in Agenda 21 (UNESCO, 2014). The declaration emphasises the indispensable need for reflection on the role of education systems in promoting human development in line with sustainability needs (Wals, 2014; Firth & Smith, 2013). The Decade offered, among other things, a means to comprehend educational mechanisms for enhancing problem-solving capacities for specific local issues around the world (UNESCO, 2007). Earlier, back in 1976, the first inter-governmental conference on Environmental Education convened in Tbilisi proclaimed the importance of education for the protection of environment (UNESCO, 1977). The Tbilisi Declaration for Environmental Education laid the foundation for both Agenda 21 (Chapter 36) and the declaration of a United Nations Decade of Education for Sustainable Development (Scott &Gough, 2004) and subsequent developments that have emerged from the UN Decade on Education for Sustainable Development (e.g. the Aiche-Nagoya Declaration recently been released from the end-of-decade World Conference on Education for Sustainable Development, UNESCO, 2014). Item 36.1 of the Agenda 21 document reflects the historically emergent relationship between the earlier Tbilisi proclamation and Agenda 21, as shown below.

Education, raising of public awareness and training are linked to virtually all areas in Agenda 21, and even more closely to the ones of meeting basic needs, capacity-building, data and information, science, and the role of major groups. This chapter sets out broad proposals, while specific suggestions related to sectoral issues are contained in other chapters. The declaration and Recommendations of the Tbilisi Intergovernmental Conference on Environmental Education 1/ organised by UNESCO and UNEP and held in 1977, have provided the fundamental principles for the proposals in this document. (United Nations, 1992)

Firth and Smith (2013) conducted a study to assess the performance of ESD practices in the United Kingdom before the UN Decade on Education for Sustainable Development came to an end. The assessment was conducted from the perspectives of ESD practitioners in the United Kingdom which had integrated ESD into pre-existing sustainability strategies (Firth & Smith, 2013). The findings identified the pertinence of sustainability educators and suggested the need for educators to understand their responsibilities in solving sustainability issues (ibid.). The UN's (2014) final monitoring and evaluation report on the Decade of Education for Sustainable Development also identified the significant role of education in progressing sustainability development at global, regional and sub-regional levels (UNESCO, 2014). "There is an increased recognition at the international policy level that education is essential to the advancement of sustainable development, with many countries committing to continuing to work to advance ESD at the national and local levels"(ibid., p. 9). The summary of the report observed four lines of trends emerging from the Decade and recommended that these trends guide the success of ESD in post-Decade initiatives. The report identifies ESD as facilitator of (1) sustainable development, (2) pedagogical innovations, (3) stakeholders'engagement, and (4) cross-cutting issues at different levels of education (ibid.).

The relevancy of the UN's 2014 report is reflected in Firth and Smith's (2013) plea for educators to re-examine the education in their practices as well as in policy framing. They requested a focus on the pedagogy of learning and argued that educators need to re-imagine learning processes to mediate the intended sustainability goals. Central to the metaphor of're-imagining'education is a broader idea of diligence and reflexivity in the framing of pedagogical and methodological practices for critical change in human beings (Jickling, 2013; Lotz-Sisitka, 2014). Lotz-Sisitka, (2014) highlighted the relevance of re-imagining education when the world is debating climate change challenges under diverse perspectives of impacts to human lives. The UNESCO report for the UN Decade of Education for Sustainable Development (2014) also identified learning collaborations, critical thinking and

reflexivity as key aspects in empowering sustainable actions. The report also recognised the importance of reflecting on the core roles of education when designing methods of learning in complicated learning areas, such as climate change, environmental vulnerability and biodiversity.

Responsive approaches to development and environmental concerns are not new as they can be traced as far back as the Brundtland report (United Nations, 1987). The report popularly known as *Our Common Future* is a profound publication for guiding changes in resource governance with a focus on environmental livelihoods. Written in 1987, Chapter One of the report expresses a global concern (still relevant today) for conscious balancing of environment and development, as shown below:

> Failures to manage the environment and to sustain development threaten to overwhelm all countries. Environment and development are not separate challenges; they are inexorably linked. Development cannot subsist upon a deteriorating environmental resource base; the environment cannot be protected when growth leaves out of account the cost of environmental destruction. These problems cannot be treated separately by fragmented institutions and policies. They are linked in a complex system of cause and effect … Thus economics and ecology must be completely integrated … Economy is not just about the production of wealth, and ecology is not just about protection of nature; they are both equally relevant for improving the lot of humankind … To successfully advance in solving global problems, we need to develop new methods of thinking, to elaborate new moral and value criteria, and, no doubt, new patterns of behaviour. (United Nations, 1987, pp. 32-33)

*Our Common Future* expressed a mutual interdependence between economic production and environment services and how this relation affects human lives. The logic of projecting a balanced use of economy and ecology is centred on re-orienting human assumptions through critical reflections on normalised values. Another popular and more recent text by the Nobel Laureate Ellinor Ostrom (1990) theorised some economic models for governing natural resources that challenged the assumptions of the state's ability to govern common resources. "What one can observe in the world, however, is that neither the state nor the market is uniformly successful in enabling individuals to sustain long-term, productive use of natural resource systems"(Ostrom, 1990, p. 1). She challenged the belief that human beings, without state control of resources, are not responsive enough to ensure wise management of public resources on the bases of negligence and individualism. She acknowledged the capability of local resource users to employ self-governance schemes that are based on critical reflections of contextual issues that impact the resources they manage.

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Ostrom (1990) argued that resource users are agents for re-framing relevant local capabilities through collaborative coordination and reflexive sharing of common resources. Ostrom's (1990) conceptualisation of resource management, though general, is relevant to Participatory Forest Management approaches advocated in the 1980s in Tanzania (United Republic of Tanzania, 1998). The Participatory Forest Management guidelines focus on levelling powers in centralised resource management systems by inviting local people's participation in managing resources in their village areas (United Republic of Tanzania, 2007a). Ostrom (1990) believed that the self-governance schemes were potentially oriented to enhance local understanding of resource issues and contextually-mediated knowledge of the shared commons. However, Ostrom (1990) did not explicitly mention or discuss the learning essential in the self-governance schemes. This research takes this further in Chapters Five and Six.

## 2.5  CRITIQUES OF SUSTAINABLE DEVELOPMENT

The previous sections account for popular attempts to address issues of environment and sustainable development through education reforms leading to the United Nations Decade of Education for Sustainable Development (2004-2015). However this research is also aware of the existing critiques in conceptualising issues of sustainable development as is reflected in educational and developmental practices. The critiques of the concept of sustainability are many, including sustainability policy framing, ambiguity in the meaning of sustainable development, in describing sustainability processes, in identifying sustainability outcomes and in approaching sustainability goals as well as in conducting sustainability research (Jones & Carswell, 2004; Corcoran, Walker,& Wals, 2007; Vare & Scott, 2007; Firth & Smith, 2013;Webster, 2013). The following two sections discuss the critiques of sustainable development in terms of its ideological perspectives and its economic orientations as these are most pertinent to this study.

### 2.5.1 Critiques of ideological perspectives

This critique particularly reflects on the conceptualised forms of sustainable development, which are found to be contested in meaning in terms of relational differences in perspectives, contexts and assumptions (Corcoran, Walker & Wals, 2007; Firth & Smith, 2013; Jones & Carswell, 2004). Firth and Smith (2013) identified some challenging features in the conceptualisation of sustainability in the UNESCO guide documents. They observed tensions

within sustainability thinking and assumptions that impacted on the strategies addressed by the document. They conclude that the tensions emerge from a coalition of ideological differences between the northern and the southern social-economic differences, as expressed below:

> Sustainable development is not about the maintenance of the status quo, but rather about the directions and implications of change … And if educators and students are not encouraged to assess critically these issues from different perspectives, challenging approaches and beliefs and broadening the discussion – ESD will not be successful. (Firth & Smith, p. 172)

Such critiques also concern practices and perspectives of Education for Sustainable Development, e.g. in research (Corcoran et al., 2007), in economic alignment (Webster, 2013) and in ESD teaching and policy development (Vare & Scott, 2007).

### 2.5.2 Critiques through economic perspectives

The scholars who approach the problem of environment and development from economic perspectives do not believe in the notion of contradictions between sustainability efforts and economic demands. They generally see compatibility and mutual dependence between environmental sustainability and economic development (Jones & Carswell, 2004; Webster, 2013). Jones and Carswell (2004) challenged the sustainability literature of the 1980s for portraying development and sustainability as being in conflict. The 1980s literature regarded the emergence of the concept of sustainable development as a strategy for harmonising the existing conflicts between environment and development (ibid.). Through this observation, Jones and Carswell (2004) suggested that there is a trade-off between sustainability issues and economic development since the journey to sustainable development may not achieve success without compliance to "…technocrats, managerial, capitalist and modernist ideologies" (p. xxi). Recent scholars therefore perceive economic developmental strategies as serving the mutual interest of sustainable development and environment.

Webster (2013) highlighted the lack of systemic thinking in the ideas of sustainable development by illuminating gaps in social-political and economic relations necessary for environment/development dialogue. Webster described the ontology of sustainable development as a collapsed ontology that failed to address a balance of powers between economic development and sustainability opportunities. He described it as a"…failure to see the interconnections, and map the consequences; a failure to see the 'big picture'and emergent properties; … to have, very often, an overrated sense that the situation can or could

be *managed…*" (Webster, 2013, p. 299, emphasisin original). Webster (2013) advocated for a circular economy progressed by the MacArthur Foundation since 2010. He encouraged sustainability thinkers to consider diverse ways of enhancing the output of both economic production and sustainable development. The basic principles of a circular economy are to implement economic schemes in line with systemic replenishments of biological life (Webster, 2013; Webster & Vare, 2012). The principles of a circular economy could relevantly be applied to other fields of social-economic lives. The model encourages systemic feedback in economic production that promotes economy while restoring the vitality of bio-economic systems. The feedback systems are designed to lower the non-biological components of the system and check their influence on biological components. Thus, a circular economy works in systems of high biological circulation and lowered influence of technical flow to the bio-circulation, e.g. regulated emissions, energy security and waste management systems (Webster, 2013). Webster also challenged sustainability ideas that confront human likings by commenting negatively on people's choices. He argued that the approach of advocating sustainability through negativity is not socially friendly and therefore is hard to sustain. He believed that the concepts of 'reducing'or 'reusing'materials could dissolve when a systemic approach to circular economy is normalised in societies.

In a similar way, Pahl-Wostl (2006) advised water system managers to integrate technological advances in sustainable management of water systems. Pahl-Wostl (2006) looked at the fast growing technological industry and its implications for human societies and suggested that technology cannot be separated from other social systems. Thus, she argues that the sustainability industry takes up a space in the world of technological interventions. The forest management practices for sustainability may, for instance, maximise output by enhancing the technological components of the practices. This could include the use of enhanced technology during surveys of forest boundary to minimise errors and local conflicts, improve technology of local charcoal kilns to minimise emission of greenhouse gases, or use of technologies for extinguishing forest fires. A current study on corporate South Africa by Nhamo (2014a) has described the positive contributions of South African companies in lowering carbon emissions. Nhamo (2014a) praised the South African green economy policy for encouraging corporations to become environmentally responsible in their ways of production. The green economy approach could also apply to other levels of production industries and local projects in terms of improving hazard proofing for environmental conditions as is the interest of the REDD+ programme.

## 2.6 THE HISTORY OF EDUCATION IN FOREST CONSERVATION

This section attempts to link general issues of education, sustainability learning and economic production to specific issues of forest management in relation to historic trends. The section aims to bring to light the emergence of education and sustainability learning ideas in the field of forest management. This discussion explains some historic practices of forest conservation and management of tree resources in Africa and particularly Tanzania, how the practices occurred and why. The discussion will show how education and learning was introduced in the forestry industry.

### 2.6.1 Pre-historical management of forest resources

The history of logging for domestic use dates back 60 000 years. The first evidence of the use of wood for construction was found at the Kalambo Falls in Tanzania (Chaney, Edlin, & Pope, 2013). The Kalambo archaeological site is located along the Kalambo Falls on the border of Tanzania and Zambia. Clark (2001), who excavated the site, surveyed the riparian forests along the Kalambo river basin in order to establish connections between contemporary approaches in forest use and pre-historic uses. He studied the types of wood available in prehistoric times and the choices of plant resources for use, e.g. for food, weapons, and fuel. His findings predicted that the valley was richly endowed with a variety of woodland species and that human choices of wood resources for social-cultural reasons were more or less the same as today.

> The local basin in the Kalambo river valley above the famous falls in the boundary between Zambia and Tanzania provides one of the longest and richest records of human activity so far recorded from a single site in the African continent … The site is unique in that besides very rich and representative series of cultural finds, wood and other vegetables remains, charcoals and pollens have been preserved, often in association with rich lithic assemblage. This enabled the cultural evolution to be seen in relation to the changing ecological conditions of later Quaternary times and an appreciation to be made in pre-historic groups who lived there. (Clark, 2001, preamble)

Other pre-historical records of wood being used in human lives, comes from the early wood-using communities that inhabited areas along water bodies, where wood was mainly used for fire, boat building, and wooden ploughs (Chaney et al., 2013). Other uses of wood in ancient communities involved the making of tools, e.g. for digging and sowing, carpentry as well as the making of some of the wood fabrics found in Egyptian tombs (ibid.).

### 2.6.2  An overview of colonial to post-colonial management approaches

Carswell and Jones (2004) suggested that colonial approaches to managing forests are more or less uniformly implemented in most parts of the developing world. They identified similarities in forest management practices based on post-colonial approaches in conservation philosophy across different regions in the world. They also identified a colonial philosophy of managing forests reflected in post-colonial African narratives, as being anchored in resource appropriation. The conservation narratives are described in pre-colonial Africa as harmonious (with a small human population) and the post-colonial times as environmentally stressed (with large human populations) (Carswell & Jones, 2004; Gonzáles-Gaudiano, 2004). Carswell and Jones (2004) suggested that the base for post-colonial policy narratives originated from colonial beliefs. They also identified the tendency to prescribe solutions to curb human induced pressure on forests and that most of these solutions preferred centralising forest management systems.

In view of this, Fairhead and Leach (2004) suggested an interpretation of pre-colonial ecology as 'environmental friendly', thus implying African nations must strive to bring the environmental 'Eden' back to life (p. 13). The concept of bringing back 'Eden' was also noted in post-colonial scientific theories of conservation, which prescribed solutions for environmental stress through the 'do not touch' management approach. The 'do not touch' forest management approaches were also evident in Tanzanian policy narratives before the introduction of participatory approaches, as shown in Participatory Forest Management guidelines (United Republic of Tanzania, 2007a). González-Gaudiano (2004) also described the post-colonial theories of conservation as prescriptive and predominated by centralised management systems. He noted the influence of the dominant political discourse on the scientific theories of conservation through mobilisation of academic research. Fairhead and Leach (2004) stated that colonial conservation theories originated from the 'myth' that suggested all human habitation in forests caused degradation of forests through settlements, farming, and logging for domestic purposes.

The earliest forestry schools were started in the United States of America and Europe in the 1800s (Chaney, Edlin & Pope, 2013; Sachs, 2004). In Africa, scientific studies on forestry were introduced before the 1900s (Sachs, 2004). Early records of forest exploration in the coastal forests of Tanzania date from between 1890 and 1910, as identified in the project document on extending the coastal forest protected area subsystem in Tanzania (2009-2014)

(United Republic of Tanzania/UNDP/GEF, 2009). The Pugu and Kazimzumbwi forests, also part of the coastal forests, were identified for protection in the 1940s and 1950s, respectively. Around the same time, Tanzania's first forest policy was developed in 1953 (United Republic of Tanzania, 1998). After Tanzania's independence in 1961, the government, like many other recently independent countries, took charge of the economy and retained most of the colonial administrative approaches in forestry and other resources. The post-colonial administrative approaches, based on public control of resources by external agencies or central government systems, are described by Ostrom (1990). Ostrom (1990) analysed and critiqued the centralised forest governance systems by identifying possible debilitations that emerge from centralised management errors. She outlined some of the management errors that result from unreliable information and inadequate time and capacities for the remote management of local resources. She noted that "without valid and reliable information the central agency could make several errors, including setting the carrying capacity or the fine too high or too low…" (Ostrom, 1990, p. 10).

Ostrom (1990) further expressed concerns about the effectiveness of centralised management when it comes to overcoming challenges in institutionalising changes in forestry industries. She stressed the significance of involving local actors in understanding the dynamic context of local change. "I argue that 'getting the institutions right' is the difficult, time-consuming, conflict-invoking process … new institutional arrangements do not work in the field as they do in abstract models unless … participants in the field understand how to make the new rules work" (Ostrom, 1990, p. 14). Although, Ostrom (1990) did not explicitly focus on orienting learning landscapes to resource management, her work recognised the clear role of systemic learning in mediating change processes. The strategic management models explored by Ostrom (1990) were methodologically dialectic, in the sense that they viewed resource management processes as oriented towards change (Hart, 2004). Hart (2004) described the concept of a dialectic model as being based on management strategies that orient conservation objectives to change-based institutionalisations. Hart (2004) identified this kind of management system as dialectic, since it provides for planning, monitoring and reviewing of project objectives as well as caring for mediatory systems of change.

The discussion in this section shows that centralising systems of forest management appear costly in terms of institutionalisation demands. This gets complicated when the agencies, mostly government bodies, have less access to contextual information, less expertise and inadequate resources for managing forests in local grounds (Burgess et al., 2010). Ostrom

(1990) identified the powerful role of local actors, including resource users, in integrating the relevant local information to address local resource issues and create local networks, identical to community-based forest management approaches.

### 2.6.3 Educational paradigms relevant to the management of forest resources

Cundill et al. (2011) have described the evolution of education and learning in conservation of most developing countries before 1980, when social learning ideas began to influence conservation. They identified that conservation planning was largely based on ecological perspectives, scientific objectives and hard system thinking. Education and learning for resource management in such management systems focused on research and exploration of forest values as well as recruitment and capacity building of forestry staff (Ostrom, 1990; Burgess & Muir, 1994; United Republic of Tanzania/UNDP/GEF, 2009). Burgess and Muir (1994) noted the existence of a large body of research on biodiversity and forest values in the coastal forests of eastern Africa by the 1970s. Thus, the educational focus in the conservation industry aimed at improving the quality of conservation services to the public and was not explicitly focused on community learning or involvement of community in forestry institutions (Ostrom, 1990; Cundill et al., 2011)

By the early 1980s, most of the inland forests of Tanzania had been studied and their values had been identified and the government, with political support from the international conservation community, began to develop policy narratives for integrated conservation (United Republic of Tanzania, 1998). Integrated conservation was pursued partly to arrest the already prevalent degradation of forests in the country (ibid.). It was also a response to the global economic movement towards privatisation of government resources. The global movement of privatisation of natural resources to local agencies followed the World Bank Structural Adjustment Programmes, which set conditions for governments regarding administrative management in the late 1980s (United Republic of Tanzania, 1998; Scott & Gough, 2004; Jones & Carswell, 2004). As this research explores the ontological orientations of forest management approaches to education and community learning, the policy narratives that introduced some learning-invoking terminologies in relation to communities are relevant for surfacing learning ideas. The prominent terminologies that are implicated in learning in the 1980s policy narratives in Tanzania included community participation, sustainable use of resources, joint management, livelihood economy and cost-benefit sharing. Furthermore, this study is aware of policy narratives that may describe community participation and

empowerment of people without necessarily implementing the mentioned items as suggested by Nhamo (2014b).

The 1980s saw an important global shift from centralised, expert-driven developmental policies to socially and context-based policies that put people at the centre of the focus in African countries (Jones & Carswell, 2004; Wals, Van der Hoeven & Blanken, 2009; O'Donoghue, 2015). This shift emphasised the agency of local people in mediating the social-political and historical experience of societies in which they live and act (Lacey & Williams, 1987; González-Gaudiano, 2004; Jones & Carswell, 2004). New policies and managerial structures stressed peoples'basic needs, developing of people's capabilities and capacities to wisely manage local resources for contemporary and future use (Ostrom, 1990). The policies aimed to encourage local people to act responsibly, create a sense of local agency for change, and engage local communities in formal joint management programmes (United Republic of Tanzania, 1998; 2007a). Thus, a change was observed from science-based, expert-led developmental schemes to people-centred, bottom-up development. Cundill et al. (2011) suggested that the people-centred approaches in conservation challenge and trouble ecological managers. They argued that:

> Assertions about the importance of understanding social dynamics and of the need for compromises in decision making leads to fears of watered-down conservation. As a result, conservation professionals too often ignore developments in social science. Responsibility for this interdisciplinary engagement, however, lies not only with conservation professionals trained in the natural sciences, but also with social scientists. The need for meaningful engagement between disciplines in search of solutions to complex natural resources management problems is imperative. (p. 2)

Cundill et al. (2011) noted the importance of interdisciplinarity in integrated approaches to conservation. The concept of interdisciplinarity emphasises the need to involve multidisciplinary and crossdisciplinary understandings in articulating integrative management schemes. This emphasis emerged after many participatory approaches failed to deliver the educational roles intended for their outputs (Keen, Brown & Dyball, 2005; Lotz-Sisitka, 2012a;Stokols, 2013). Many participatory approaches focus on people's participation, but they do not provide for open dialogues among actors to collaboratively frame the issues (Cundill et al., 2011; Keen et al., 2005). For instance, the Participatory Forest Management (PFM) status report (2006) for Tanzania highlights the lack of strategic preparations to implement cost-benefit sharing in national forest reserves. This shortcoming is also mentioned in the five-year strategic plan for the Tanzania forest service, as described in

section 1.3.3. Community learning, institutional change and social transformations are taken for granted in these approaches and assumed to occur by communicating proper forest knowledge to local people (González-Gaudiano, 2004; González-Gaudiano & Meira-Cartea, 2010). This study navigates across various traditions in conventional Education strategies, which are used to implement Conservation Education projects and programmes in most developing countries.

### 2.6.4 Conventional methods and strategies for Conservation Education

In this section I will describe some of the conventional approaches and strategies involved in Conservation Education. I consider Environmental Education (EE) as an umbrella term for most educational approaches and strategies that foster ecological understanding for which Conservation Education (CE) is part. Other known approaches and strategies for Environmental Education described in this section includeenvironmental information and communication, and environmental advocacy strategies. I will also describe the contribution of NGOs in carrying out considerableEnvironmental Education work around the world. This section aims to foreground the concept and processes of forest education and learning that are identified in this research as social and transformative in orientation.

*2.6.4.1 Conservation Education*

Among the earliest global movements towards integrating education in conservation was the establishment of the Conservation Education Association of the United States of America in 1953 (Disinger, 2005; McCrea, 2006). Disinger (2005) explained that the purpose of the Association was to promote Conservation Education by informing people of the interdependency between humans and nature. Interestingly, the Conservation Education Association movement occurred parallel to forest surveying in African countries and to identification of biodiversity potential and species endemism in the Pugu and Kazimzumbwi forest reserves in Tanzania. McCrea (2006) viewed the establishment of the Conservation Education Association as a response to the devastating droughts in the heartlands of America in the 1930s. Thus, the Association was assumed to be a social-political movement responding to the droughts by advocating social measures, coping strategies and resolving the existing ecological frustrations. According to Disinger (2005), the aims of the Conservation Education Association included the advancement of Conservation Education in different levels of society. This covered all fields of nature studies, including "desirable social, economic, scientific, cultural and political climate"(Disinger, 2005, p. 141). Members of the

Association volunteered to teach nature-related dynamics in schools and communities. Disinger (2005) noted that the modes of ecological learning that were employed in the teaching "were based on lectures-memorization-drill-recall-recitation approaches, by promoting direct contact with things, places and people"(p. 141). Conservation Education movements in the United States of America remained prominent until the mid-50s, when the United States turned its investment into spaceship technologies. As discourses of space science took over, education policies in the United States prioritised science-based disciplines in schools and the interest in Environmental Education subsided (Disinger, 2005; Johnson & Mappin, 2005).

*2.6.4.2 Environmental Education*

The earliest Environmental Education initiatives in the United States included the passing of the Environmental Education Act of 1970, which enabled the creation of the Office for Environment Education (Disinger, 2005; McCrea, 2006). By the 1980s, many of the local Environmental Education reforms in the United States obtained funding to address the global economic agenda on structural adjustments through this office (Lacey & Williams, 1987; Jones & Carswell, 2004; Disinger, 2005). Johnson and Mappin (2005) described the role of Environmental Education movements in school communities as broadening young people's understanding of    environmental issues. Lacey (1987) emphasised the importance of Environmental Education to schools and communities in eradicating differences in economic power relations between the developed and developing worlds. He also noted that one of the roles of Environmental Education in schools was to encourage debate on the negative impacts of economic development on ecological well-being. Environmental Education was, therefore, thought of as emancipatory for its ability to raise environmental consciousness and action (cf. González-Gaudiano, 2004; Johnson & Mappin, 2005).

Johnson and Mappin (2005) identified confusion in designing Environmental Education curriculum for school learners as policy developers were not able to agree on the contents of Environmental Education to be included in school curricula. While the pedagogical dialogues on Environmental Education continued, Environmental Education already formed part of biological sciences and geography (González-Gaudiano, 2004). The contents of Environmental Education also suffered from differing social-cultural views and economic perspectives within the science-based curricula and the entire science epistemology (González-Gaudiano, 2004; Johnson & Mappin, 2005; Jackson, 2013). One of the most popular and meaningful definitions of Environmental Education of the 1970s, praised for its

comprehensiveness by Johnson and Mappin (2005),came from the Tbilisi conference of 1977. Johnson and Mappin (2005) identified the explanation as "holistic in its approach to global problems, and therefore interdisciplinary in methodology, innovative in creative processes, and, perhaps most importantly, renovative of education systems as a whole" (p. 19). I also consider the Tbilisi conference description, quoted below, to be inclusive and to offer different strategic possibilities:

> Environmental education must adopt a holistic perspective which examines the ecological, social, cultural and other aspects of particular problems. It is therefore inherently interdisciplinary. However, the problems it addresses should be those familiar to the learners in their own home, community, and nation and it should help the learners acquire the knowledge, values and skills necessary to help solve these problems. This means that environmental education involves learning from the environment as well as about the environment, and in many situations this would require changes to be made in some well-established approaches to teaching, especially in formal education. With the adoption of this problem-oriented and action-oriented approach, environmental education thereby becomes both lifelong and forward-looking. By its interdisciplinary nature, as well as by bringing education nearer to the environment and to life, environmental education can play a considerable role in the renovation of educational systems. (UNESCO, 1977, p. 12)

The Tbilisi description of Environmental Education proposes diversified curricula to meet more than biological and geographical needs of course contents. The teaching and learning of Environmental Education is portrayed as methodological, interdisciplinary and socially critical. However, the inclusiveness of issues in policy descriptions can always guide practices and cannot possibly guarantee the implementation of practices. For instance, Rodela, Cundill and Wals (2012) observed that while most Environmental Education practitioners, including researchers and educators, may express contextual-based epistemology in their work plans, they fail to implement the designs in practice.

The success and challenges of Environmental Education in practice are beyond the scope of this study, although some insights on the challenges facing Environmental Education in formal school can be drawn from prominent Environmental Education analystssuch as González-Gaudiano (2004) and Jackson (2013). Jackson's (2013) view of these challenges is based on the Indian Environmental Education approaches in course books. From Jackson's (2013) analysis of various course books emerges a tendency of improper portrayal of social-cultural conditions in India. The ambiguity in contextualising Environmental Education

studies is a serious mistake, according to Jackson (2013), since school children come from different social-cultural backgrounds. He also noted the systematic contradictions and misconceptions in the presentation of Environmental Education matters for environment and biological sciences. Jackson, who examined the inconsistencies in the teaching of pesticides from Grade Five to the end of Grade Twelve, noted several conflicting arguments within pesticide teachings. For instance, he observed that "the student is told that pesticides are a serious threat to people's health, and also that he/she should spray DDT regularly in his or her house to kill mosquitoes" (Jackson, 2013, p. 23).

González-Gaudiano (2004) analysed the shortcomings of Environmental Education and disagreed with the tendency to base Environmental Education content on ecological studies, which, he argued, leaves little room for the integration of social-political aspects in environment. He also noted conflicts in the field of Environmental Education, where conventional schooling is neither relevant to the demands of today's 'computer-conditioned children's minds' nor to rural children (p. 125). González-Gaudiano (2004) concluded his argument by acknowledging the power of conflicts in stimulating innovative thinking towards new development in education systems:

> I do not wish to give impression that the idea is to construct an environmental education field without conflicts; nothing is further away from my mind since I consider that the conflicts is what inherently constitutes the field. It is the conflicts with its varying plans and dimension that has allowed for the de-sedimentation of the dominant conception of environmental education…It is the conflict that has brought about the appearance of other forms of environmental education. It will be the conflict that generates the movement needed by the pedagogical complexity of environmental needs. (p. 125)

The inconsistencies in Environmental Education perspectives for different learner groups pointed out by González-Gaudiano (2004) is also implicitly expressed by Jackson (2013) when he described the failure of Environmental Education in the Indian curriculum to harmonise the needs of children from elite families with those from rural families. As a consequence, the contents of Environmental Education do not serve the best interests of either of the groups (Jackson, 2013).

Environmental Education movements in African regions and particularly in southern Africa, followed more or less the same trajectories as those of Northern regions and Asia (O those of nts i. Some initiatives for Environmental Education in Africa were consolidated into regional programmesas shown in section 1.4, where the Southern African Development Community-

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Regional Environmental Education Programme (SADC-REEP) and the Nile Transboundary Environmental Action Project (NTEAP) are described. In Tanzania, Makundi (2003) reviewed the developmental interventions of Environmental Education in Tanzanian primary schools from its independence in 1961. She pointed out that the country, by 2003, did not have a policy for Environmental Education, and so environmental teaching and learning was guided by the frameworks for education and training policy, in which environmental issues were not clearly defined. "The study found that the curriculum, which is the vehicle for translating policy into action is not adequately implemented due to poor defining of environmental education in early policy documents" (Makundi, 2003, p. 135).

Babikwa (2004) examined the impact of community-based environmental education in rural Uganda. He identified inconsistencies between emancipatory objectives aimed at project facilitation agencies and the disempowering practices employed in the facilitation processes.

> With regards to the use of emancipatory methods, it has been revealed that although participatory educational methods are potentially empowering, they can be used in a technicist-disempowering manner, to meet the educators' interests, depending on the ideology of the educator, his/her capacity to make effective use of the methods or some other contextual factors beyond the educators' control (p. 77)

Babikwa's (2004) research exemplifies the contradictions, inconsistencies and tensions in the field of Environmental Education, when planned practices (at the levels of policy, research, sustainability projects, school curricular, etcetera) may fail to translate into implementation practices.

### 2.6.4.3 Information and communication strategy

Information and communication is a form of outreach extensively employed in Conservation Education, especially by NGOs (Johnson & Mappin, 2005). Johnson and Mappin (2005) examined the effectiveness of an information and communication strategy for conveying conservation messages to different groups of people, including rural communities. The pilot project for REDD at the Pugu and Kazimzumbwi community also identified advocacy, communication and awareness campaigns as strategies to stimulate community learning through engagement of people in climate change debates. Implementable activities for information management and communication in the project included media work, production of brochures, newsletter articles and popularised reports as well as awareness campaigns, training and field visits (Wildlife Conservation Society of Tanzania, 2010).

Scott and Gough (2003) noted that the strategy of using information and communication for Conservation or Environmental Education is often a one-way transmission of information to individuals and thus it does not necessarily engage learners'construction of knowledge in the information process. Scott and Gough (2003) therefore described the strategy of using information and communication for Environmental Education and learning as an ineffective and incomplete pedagogy. They argued that, with this strategy, communication can hardly assume a two-way process, especially when spread through informative print materials. Distribution of print materials does not allow for negotiation, experimentation or physical engagement of learners in the learning process. As Scott and Gough (2003) put it: "a leaflet pushed through the door will almost certainly fail under such circumstances" (p. 39). This could be even more challenging if individuals supplied with the information choose to decline the information based on personal interests, beliefs or moral reasons (Scott & Gough, 2003; Glasser, 2007). Scott and Gough (2003) acknowledged that information and communication may make a significant contribution to sustainability learning, but concluded that the method is not pedagogically capable of enacting systemic changes in human lives. An information and communication strategy is, however, recommended for its ability to deliver prescribed items, e.g. when NGOs are working to complement a nation's goals for sustainability. Scott and Gough (2003) proposed that NGOs could be commissioned to spread sustainability practices amongst people through information dissemination and communication. They stipulated"some international environmental NGOs are increasingly focusing resources for education initiatives on only using information and communication strategies" (p. 42). This assertion was also supported by Slingsby and Barker (2005). Informing and communicating as a strategic method for Environmental Education is also strongly associated with the broader approaches that the World Wildlife Fund (WWF) use for the mobilisation of biodiversity conservation throughout the world. Scott and Gough (2003) noted the success of WWF's contribution towards biodiversity conservation around the world, especially where the strategy is properly managed.

*2.6.4.4 Environmental advocacy strategy*
Jickling (2005) argued to separate the pedagogic contexts of education in Environmental Education from advocacy strategies. He claimed that confusion arises when Environmental Education practitioners fail to differentiate between advocacy and education. He distinguished education from advocacy by describing the concept of education from its core principles of educating individuals. He explained that the purpose of advocacy was not to

educate an individual but rather to persuade an individual to take a particular stance. Seen from this angle, education processes are apparently indeterminate as they equip individuals with the necessary skills, knowledge and values to understand things. Education is described by Jickling (2005) as a dynamic process because it enables individuals'capabilities to synthesise matters around issues. Education equips individuals with necessary values and skills to construct alternative knowledge beyond the knowledge that was given. Jickling (2005) further suggested the education process as enabling, stimulating multiple forms of knowledge and allowing ambiguities to emerge as the learning takes place. Advocacy, on the other hand, is described by Jickling (2005) as a prescriptive approach that indoctrinates the audience. Jickling (2005) argues that the use of advocacy as a strategy for Environmental Education is non-educational, since it does not provide learners the opportunity to construct alternative options in their learning.

Jickling's (2005) argument makes clear the separation between education and advocacy in Environmental Education. Education practices are identified as broader and deeper than advocacy practices and so some educational strategies can be used for advocacy, but not the other way around. Jickling (2005) stated that "it is one thing for an individual to assess the range of available environmental alternatives and advance a case for a preferred options; it is quite another to insert this opinion into the heart of anything educational" (p. 98). Slingsby and Barker's (2005) article on ecological education supports this notion stating the inability of advocacy to change people's behaviour or do anything more than increase knowledge of the environment (cf. Scott & Gough, 2003).

Jickling (2005) recognised the strength of advocacy in the confident articulation of advocated items. These items serve as a doctrine passed on from the knower to another individual, in ways that persuade the other individual to adopt the doctrine (ibid.). Slingsby and Barker (2005) commended the efficacy of certain advocacy groups in using their skills and knowledge to assertively advance claims on what they understand to be true and bring these claims into public consciousness. They regarded advocacy groups as powerful in disclosing issues to the public in ways that incite civic debates, which are not encouraged by institutional hegemony (ibid.). Massey and Barrera (2013) discussed the strengths of advocacy strategy in advancing change-oriented research. Massey and Barrera (2013) explained that the contribution of advocacy research is to reorient public understanding on issues, to empower social justice and to emancipate people. Thus, advocacy is seen as a necessary companion of good social science research. According to Massey and Barrera

(2013) "advocacy and good science are not mutually exclusive" (p. 618).


*2.6.4.5 The position of Non-Governmental Organisations on Environmental Education*
Kajimbwa (2006) acknowledged the impact of NGOs in creating dialogues on Environmental Education through advocacy, awareness raising and informing and communicating around the world (cf. Lacey & Williams, 1987; Capra, 2005; Johnson & Mappin, 2005). I, for one, was recruited by an NGO that implemented some of the Participatory Forest Management (PFM) projects in Pugu and Kazimzumbwi and the REDD project, as described in section 1.3.4.

The role of NGOs in Environmental Education was consolidated in the eighties when the environment and development agenda was foregrounded by environmental protection movements and governments were summoned to release state autonomies to local agencies (Jones & Carswell, 2004; Jicking, 2004; Kajimbwa, 2006). Capra (2005) described how NGOs and Civic Society Organisations emerged as social-political mediators to work on grassroots services. Jones and Carswell (2004) defined NGOs as "non-institutional formal groups (having adopted rules and conduct or constitutions and defining organizational goals) …they have at least full-time staff, some sort of hierarchy, a budget and an 'office'" (p. 96). Kajimbwa (2006) defined NGOs as civil groups in a form of association that is self-administered in their operations. He further described the modality with which NGOs work in rural communities to include a focus on improving people's well-being, such as through education, sanitation and poverty alleviation. Many social-political analyses identify a category of NGOs that is activist in nature and does not work for profit, but empowers local people and communities (Jones & Carswell, 2004; Kajimbwa, 2006). Most of the activist work is voluntary, driven by the prevailing politics and economic discourses that impact on people's welfare (Jones & Carswell, 2004; Kajimbwa, 2006).

Jones and Carswell (2004) and Kajimbwa (2006) identified that NGOs in developing countries have had their share of limitations and weaknesses, including basing their agenda on either state politics or donor influences. The reliance of NGOs on global or national political discourses influences NGOs' use of resource and capacities, as their ontological and epistemological orientations are mediated by external discourses. NGOs from northern countries are therefore likely to mirror their agenda to southern NGOs, which may not fit specific contextual demands of communities in the southern countries. Kajimbwa (2006) further noted that communities can mediate the agenda of an NGOin a way that can cause the

NGO to fail to achieve the intended objectives. This, he says, may be influenced by a lack of democratic alliance of a community to the NGO, especially when the NGO does not properly negotiate the alliance beforehand (Babikwa, 2004; Kajimbwa, 2006). Although NGOs are empowered by political discourse, the success of NGOs'work is largely determined by the level of community engagement (Babikwa, 2004).

Another important weakness of NGOs and other organised groups that are undertaking Environmental Education in schools and communities, is their questionable qualifications for conducting educational programmes (Disinger, 2005; Jickling, 2005, 2013). Jickling (2004) asserted the core values of education to be central in the implementation of Environmental Education programmes (see section 2.2.2). He argued that it does not matter what kind of strategies practitioners choose to implement environmental education issues; what matters is the positioning of education values in the programme designs. This can emerge from the educational capacities in terms of practitioners' qualifications and pedagogic strategies (ibid.). Jickling (2005) also suggested a 'guidepost' for educational interaction to include, but not be limited to, the understanding of indeterminacy in learning. Jickling (2013) employed the metaphor of 'jumping up and down' to describe the ambiguity in managing educational-based strategies. The 'jumping up and down' metaphor suggests that practitioners must be flexible enough tocope with the dynamics of educational processes.

Disinger (2005) also noted the weakness in educational professionalism in Environmental Education practices. He observes a tendency of some ecological practitioners to conduct Environmental Education teaching by virtue of their knowledge and involvement in environmental advocacy. He gave a useful example of two proposals for Environmental Education in the United States back in the 1970s and 1980s that failed to get approval because the persons who proposed the projects were neither educators, nor did the process of developing the proposal involve any educators. He also noted the existence of educational materials for environmental learning, e.g. conservation booklets, nature studies, wildlife clubs, and community outreach, that are largely delivered by non-educators and are thus designed without pedagogical consideration. What is the implication of having non-educators developing nature studies for school children and communities? From my personal experience, some NGOs in Tanzania produce teacher guidebooks for Environmental Education. From what I know, writing to guide teachers'pedagogical practices is an academic

discipline, known as teacher education, which is a specialised discipline within the broader field of education.

### 2.6.5   Environmental Education through socially-oriented learning

> Going forward toward new possibilities for education for environment is messy; education is itself a messy business.  It requires constant reflection and examination on the part practitioners. However, messy or not, practitioners must decide what kind of education they feel is needed and what this means for environmental education. We have to assume some responsibility for laying out our guides to quality environmental education. We have to act; we have to create learning opportunities. (Jickling, 2005, p. 104)

Jickling's (2005) statement shows that educational practitioners can choose from diverse methods to implement learning programmes on the basis of 'fit for purpose'. The choice of certain education methods lies within the capacity of individual programmes or individual practitioners to seek the best pedagogy to achieve learning objectives. Most of the Environmental Education strategies described in section 2.6.4 were largely positivist, as their epistemological bearings were mainly scientific. The learning assumptions in most of the described strategies were based on imparting objective environment knowledge to people in schools and communities. Jones and Carswell (2004) acknowledged the efficacy of the different strategic approaches in delivering relevant Environmental Education messages about troubling ecological issues in relevant contexts. These strategies are capable of linking ecological issues to prevailing human crises and prescribe solutions for specific problems (ibid.). This kind of pedagogy is identified under the paradigm of cognitive acquisition of knowledge, which assumes that changes in people's behaviour are influenced by the knowledge they acquire. The theories of cognitive learning originated from the work of a veteran educational psychologist and philosopher of 1930s, Jean Piaget, who perceived learning as a form of cognitive knowledge.

Contemporary educational scholars have questioned the relevance of cognitive knowledge in changing behaviour. Scholars, such as Scott and Gough (2003) and Muro and Jeffrey (2008), were also not convinced of the relevance of knowledge that is acquired at one particular point in time to address changing conditions of environmental contexts. Scott and Gough (2003) described the linear acquisition of knowledge in cognitive processes as transmissive, under a rationalist assumption of learning. The rationalist model assumes that people who receive

knowledge on the environment will change their attitudes according to relevant features acquired from the knowledge.



*Figure 2.1 Rationalist model of knowledge acquisition (Scott & Gough, 2003, p. 112)*

The changes in attitude would then stimulate changes in pro-environmental behaviours, as depicted in Figure 2.1. Scott and Gough (2003) noted that this rationalist assumption was later proved to be ineffective in achieving critical learning. Scott and Gough (2003) and Vare and Scott (2007) argued that the knowledge acquired through linearly transmitted cognitive education may not lead to a change of behaviour and that the rationalist model is therefore not pedagogically stimulating enough to engage learners in the construction of knowledge. Vare and Scott (2007) described at length the differences between acquiring pro-environmental behaviours and acquiring abilities to understand environmental issues. They criticised the approaches that monitor Environmental Education and learning through changes in environmental variables, while sidelining the development of learners' ability to engage personal powers in choice making and actions. The ability to learn environmental issues is, according to Vare and Scott (2007), also influenced by many other contextual factors including the ever-changing, complex and dynamic face of the natural environment.

The following sections describe the scholarly turn from transmissive modes of education to learning approaches that base their practices on social complexity and uncertain conditions of human-based experience.

*2.6.5.1 Historical ideas in socially-oriented education*

Scott and Gough (2003) demonstrated the prevailing need for a holistic environmental learning process that reflects the social-cultural, political and economic needs of human lives. They noted that the idea of a social-oriented kind of learning started to emerge from educational theories during the 1970s. Other educational scholars also acknowledged the early influence of the 1970s educational works by Paul Freire and Jürgen Habermas on the current ideas of socially-constructed learning (Lather, 1986a, 1986b; Scott & Gough, 2003; Mezirow, 2003; Rodela et al., 2012; Kemmis et al., 2014). Both Freire and Habermas are regarded as influential educational researchers who laid the foundations for a communicative

learning process through which social-political dialogues, human ethics and equity are emphasised in learner societies (ibid.). Kitchenham (2008) described the foundation of transformative learning as emerging from among others Freire works of 1970 and 1971. He argued in favour of Freire's critique of the linear model of learning and his introduction of the concept of *conscientisation.* The concept of conscientization, coined by Freire in the seventies, entails the building of learners'critical consciousness that empowers learners to make informed decisions (ibid.). Kitchenham (2008) commended Freire's view of social-political and economic orientation to learning by elucidating the significance of democratic dialogues between teachers and learners to allow learner's input in the learning process. Kitchenham (2008) described three iterative stages of *conscientisation* in human consciousness as passing through intransitive – semitransitive – critical transitive thinking.

> The lowest stage of consciousness growth, "intransitive thought," occurs when people feel that their lives are out of their control and that change is up to fate or God. They fatalistically believe that their actions cannot change their conditions and feel disempowered with little hope for the future. The next stage, "semitransitive," involves some thought and action for change, but an individual at this stage addresses problems one at a time and as they occur rather than seeing the problem as one of society in general. At this stage, an individual may follow a strong leader who is seen as one who can change one's lot in life rather than become a leader or see oneself as a change agent. The highest level of "critical transitivity" is reflected in individuals who think globally and critically about their present conditions and who decide to take action for change. These people are able to merge critical thought with critical action to effect change in their lives and to see what the catalyst for that change could be. (Kichenham, 2008, p. 108)

From Freire's analysis of critical consciousness on learning emerges a call for deeper involvement of social-cultural embodiments of learners, in which contextual dialogues and reflexive thinking need to be encouraged in learning processes. Harbermas, like Freire, argued against the assumptive ideas of universal modernity of the 1960s and 1970s, which projected human democracy by assuming a universal, social-political society (Scott & Gough, 2004; Muro & Jeffrey, 2008). Some notes by Cavalier, Mellon and Ess (2012) from Dury College discussed Harbermas's critical work on ethics and described his vision for emancipation of marginalised communities. The notes argued that Harbermas advocated for dialogic politics that allows for democratic participation of people in political fora and which seeks consensus between parties. The contributions of Freire and Harbermas in promoting socially-communicative education and democratic practices in the teaching-learning processes, has been fundamental.

Lotz-Sisitka, Belay and Mukute (2012) suggested, however, that such learning processes are not only socially critical, but are essentially socio-cultural, for it is from the socio-cultural context that language evolves and where knowledge is constructed. In suggesting this, they proposed that the roots of learning and learning processes are social, and they argued for understanding the social-cultural nature of learning. Lotz-Sisitka et al. (2012) aimed to establish the historical origin of social cultural learning theories in order to develop an ontological stance that could inform social learning research. They noted that the evolution of social cultural learning theories is influenced by earlier work of educational psychologist Vygotksy in the 1930s, as well as by the ontological perspectives of critical realism, and if oriented towards emancipatory objectives such learning can become socially critical. Daniels (2008) also supported the view that Vygotksy's work was foundational to socially-oriented learning. He particularly acknowledged the contribution of Vygotksy to social theories of affective learning (p. 3). Daniels (2008) observed that Vygotksy and his Russian colleagues theorised learning in relation to relevant social-cultural and historic contexts of the learners and of the learning situations. This includes the influence of those conditions on people's interpretation of things and meaning making during the learning processes (Daniels, 2008; Lotz-Sisitka et al., 2012). Daniels (2008) suggested that Vygotksy's theory was a non-deterministic version of learning where learners engage in the learning process through the medium of their social-cultural and historical experience. Lotz-Sisitka et al. (2012) concluded that the ontology of social learning is based on the socio-cultural context of learning as it interacts with subjectivity of learners in the learning process, and plays out within processes of meaning making and human reflexivity. Thus, the learning processes rests in the emerged social interactions between agentic powers of human beings and changes in structural and cultural contexts in which interactions occur. The ontology of social learning is located in ongoing, change-oriented and human-reflexive circumstances of social interactions, in which learning interactions occupy various spaces (ibid.). Lotz-Sisitka et al. (2012) warned researchers not to fall into the trap of 'ontological collapse', which objectifies social learning and deprives it of the complex and systemic inter-dependence of agency and structural challenges.

To summarise the dichotomy between transmissive education and social-oriented learning, Sfard (2007) captured them in two metaphors: the acquisition metaphor for transmissive education and the participatory metaphor for social-cultural learning described in sections

2.6.5 and 2.6.5.1. Sfard (2007) noted that the transmissive theories of learning predated the socio-cultural theories of learning. The impression obtained from Sfard's (2007) analysis of learning theories is that the differences in learning orientations do not make either theory right or wrong. She argued that the theories were developed from different perspectives and thus hold different learning assumptions and cater for different conditions. Muro and Jeffrey (2008) also supported the notion that each learning theory serves a different, but relevant context of need. Like Jickling (2005) as referred to in section 2.6.5, Sfard (2007) advised educational practitioners to work with theories that inform their contexts of study and which match the ontology of their study objectives.

### 2.6.5.2 *Social learning and transformative learning*

Recent studies on socio-cultural and socially-critical theories of learning incorporate various metaphorical concepts, such as expansive learning, situated learning, lifelong learning, transformative learning, learning in communities of practice, reflexive learning and social learning. The social learning that includes transformative reflexivity, as described in section 1.6, also emerges from this diverse array of socially oriented theories and it nowadays pursues its own line of narratives.

The concept of social learning emerged from a category of participatory theory that focused on learning processes in subjective social spaces of learners'interactions with the learning. The social space for learning is subjective because it is open and systemic and, most importantly, it is mediated by human reflexivity (Kemmis et al., 2014; Lotz-Sisitka et al., 2012; Wals et al., 2007). The subjective aspect of learning within the social learning context is assumed by social learning scholars to coordinate and mediate cognitive learning of skills, reflecting on choices, intentions and actions of learners. All mediatory conditions are constituted into a human reflexive project (Archer, 2007a, 2010; Kemmis et al., 2014). Archer (2007a) suggested that the reflexive ability of people may reorient the learning project according to the learning material encountered and other conditions. Each form of human intentionality to pursue learning may occur within a reflexive project that is advanced by a learner from his/her internal social conversation with the self as he/ she reflexively makes his/her way through the world (Archer, 2007a, 2010). The observations made by Lotz-Sisitka et al. (2012), as mentioned in section 2.6.5.1 of this chapter, indicate the interface between the nature of social learning and the realist ontology.

Section 1.6 described the key feature of social learning as change in understanding that goes beyond one individual as it includes learning by multiple people. Social learning is an open-ended learning process that occurs in an open and systemic social space governed by feedback and self-regulating capacities. It is a socially emergent, constructed and interactive process of learning, as explained in 1.6.1. Social learning is transformative when the people involved in the learning can critically reflect on the learning assumptions and validate these assumptions against what they hold to be true. Thus, transformative social learning is reflective and reflexive; it involves critical thinking, the ability to question, validate, and create alternative learning assumptions and choices, as explained in the brief introduction to Mezirow brief introduction section 1.6.2, further expanded below.

Since Mezirow's early work in 1978, the concept of transformative learning has been widely reworked and reconceptualised to suit different educational contexts. For instance, Cranton (1994, 2006a, 2006b) theorised suitable teaching-learning methods in formal adult learning that brought both learners and facilitators to mutual transformations. Cranton (2006b), supporting Mezirow's basic theoretical framework, emphasised development of facilitation strategies that produce authentic relationships between learners and facilitators. She identified authentic relationships in teaching-learning as "to do with self-awareness, awareness of others, relationships, contexts and leading a critical life" (ibid., p. 12).

Taylor (1998) undertook a critical review of research in transformative learning, including Paulo Freire's work in the seventies on democracy and social integration that focused on consciousness and critical thinking. The results of this review confirmed the effectiveness of transformative learning theory for developing changes in adult learners through critical thinking and reflections, as identified in Mezirow's work. Taylor's (2007) cross-cutting study in transformative learning research focused on certain features that were of concern in the field at the time of the study. These included "the role of reflection, relationships, the meaning of a perspective transformation, fostering transformative learning and the relationship between context and transformation" (Taylor, 2007, p. 175). Taylor's (2007) findings offer more insights on essential conditions for enduring irreversibility of transformed frames in terms of construed meanings, beliefs, as well as epistemological and ontological orientations. The findings highlight the need for deliberative institutional support (beyond the cognitive changes in forms of meaning and epistemic beliefs) for learners to reach fruitful transformations (ibid.). The findings also express the impact of value-laden contexts in transformation of frames and practices. Following these findings, Taylor (2007)

recommended pedagogical recognition of the impact of contexts in planning changes that foster transformative learning. He also remarked on the complexity of fostering adult transformations in informal, open systems where institutional guidance is minimum. Finally he recommended transformative learning researchers and practitioners to give attention to the emergent insights in further research and planning.

Reflexivity and critical reflections on transformative learning may occur at individual or group levels and can reorient people's perspectives towards certain assumptions. Dirkx et al. (2006) identified different levels at which transformative learning occurs. They argued that basic transformative learning occurs at the level of rational thinking and change-driven dimensions. This kind of transformative learning is rational and deliberative as it is produced from individuals' conscious intentions and choices (Mezirow, 2006). Transformative learning has also been identified by Dirkx et al. (2006) as non-rational, when the learning process occurs without individuals' consciousness. This level of transformative learning is expressed through concepts of depth psychology, such as power of affection, emotions, spiritualism and imaginative engagement with the world (Dirkx, 2000; Dirkx et al., 2006; Taylor, 2007). Mezirow (2006) insisted that transformative learning is a rational process, as described below in a summary provided by Dirkx et al. (2006, p.124).

> The transformative learning process within awareness involves
>
> 1. recognition that an alternative way of understanding may provide new insights into a problem;
>
> 2. context awareness of the sources, nature, and consequences of an established belief;
>
> 3. critical reflection of the established belief's supporting epistemic assumption;
>
> 4. validating a new belief by an empirical test of the truth of its claims, when feasible, or by a broad-based, continuing, discursive assessment of its justification to arrive at a tentative best judgement;
>
> 5. coping with anxiety over the consequences of taking action; and
>
> 6. taking reflective action on the validated belief.

As can be seen from the above description, transformative learning processes also include reflexivity. In summarising the key items of transformative learning from Mezirow's description, DiVito's (2010) presentation in Figure 2.2 collated key words of embodiment in Mezirow's ideas.

*Figure 2.2: Mezirow's key words for reflecting transformative learning (Source: DiVito, 2010)*

Social learning and transformative learning are both customised to the field of education for sustainable development through the writings of recent education scholars (Scott & Gough, 2003; 2004; Vare & Scott, 2007; Wals, 2007; Jackson, 2008, 2013; Wals et al., 2009; Lotz-Sisitka & Le Grange, 2010; Wals & Corcoran, 2012; Wals & Schwarzin, 2012; Lotz-Sisitka, 2012b; Lupele & Lotz-Sisitka, 2012). Social learning was considered effective in enhancing collaborative involvement of different stakeholders in natural resource management and thus mediating their interests towards a common focus over the resources (Pahl-Wostl & Hare, 2004; Pahl-Wostl, 2007; Pahl-Wostl et al., 2008; Muro & Jeffrey, 2008; Pahl-Wostl, 2009).

Different conservation approaches acknowledged the role of social learning in mediating changes in management of natural resource resources (ibid.). The learning-focused conservation schemas were developed under such names as community-based management, participatory management, agent-based social stimulation, social-ecological management, collaborative management and adaptive management (Pahl-Wostl & Hare, 2004; Muro &Jeffrey, 2008; Pahl-Wostl et al., 2008; Cundill & Fabricius, 2009;Cundill, 2010; Reed et al., 2010; Rodela, 2011; Cundill & Rodela, 2012).

**2.6.6 The emergence of social learning in forest management**

My earlier reference to Jones and Carswell (2004) in section 2.5.4, mentioned political movements for participatory management of local resources through promotion of local capabilities and capacities. Jones and Carswell (2004) described a political orientation towards the understanding of local knowledge and facilitating local participation in resource management in development programmes. A global political agenda for economic restructuring is intended to empower not only the private sector but also local communities that appear oppressed and excluded in decision making (ibid.). Muro and Jeffrey (2008) identified social learning as instrumental in the move towards sustainable management of resources in participatory planning during the 1980s. Learning was considered essential for knowledge management, especially at grassroots levels where social production of knowledge and creation of knowing and knowers is practised (Wenger, 1998). My research interest covers social learning from community landscapes to natural resource management, since the context of my study rests in forest management approaches. In the following section I will explain some of the resource management approaches that advanced integrative management of natural resources.

*2.6.6.1 The concept of social ecology*
Social ecology was briefly defined earlier in section 1.6.4 as a paradigm (Stokols 2013) that emerged simultaneously across several disciplines of human development. Thus, I take opportunity to discuss it further as it underlies and informs social learning in resource management practices.

Tokar (2008, 2012) identified Murray Bookchin as a founder of the theory of social ecology through his eco-socialist writings of 1960s that advocated ecosystem justice. He described Bookchin's perception of social ecology as holistic, socially-constructed and systemically-integrative. Bookchin's (1993) article republished in 'Green from below' (Bookchin,

undated) described the social aspects of ecological sciences as involving social-cultural issues of societies such as economic, ethics, gender and others.Bookchin's (1987) articleas republished in Anarchy Archives,described social ecology as an approach "rooted in ecological philosophy, ethics, sensibility, and image of nature …that will transform our domineering market society into a non-hierarchical cooperative society…a society that will live in harmony with nature because its members live in harmony with one another" (unpaged)

Contemporary scholars have in a similar way identified social ecology as a framework for understanding the interactions that exist between human social life and the cultural context in which human relate to their physical environment in the course of living (Stokols, 2013; Stokols, Lejano, & Hipp, 2013).Stokols (2013) also identified the significance of social ecology in creating an understanding of value-laden strings of relationships, which individual humans or groups generate in the process of relating to their environment. Stokols et al. (2013) emphasised the cross-disciplinary and cross-ontological approaches that may evolve when integrating different disciplines and knowledge in social ecology studies. Stokols et al. (2013) also described the interface between the social-cultural complexities of human lives and the material nature of environment. They identified the interface as being partly material and partly ideational. Thus, social ecology is integrative and interdisciplinary in nature. Biophysical factors of social ecology can be translated through economic factors, as well as "sociopolitical, symbolic, legal, philosophical, ethical, and environmental design facets of human community" (Stokols et al., 2013, p.2). The term social ecology was thus coined to reflect a consideration of combining ideas of human systems and natural systems, as the two systems appear to function together in an environmental system (Berkes, Colding, & Folke, 2003). The two systems co-evolved in a way that each system shapes the existence and the performance of the other.

This study regards the forest ecologies of Pugu and Kazimzumwi as co-evolving with systems of people's lives in mutual interactions during different time dimensions. Based on this assumption, the research looks at the Pugu and Kazimzumbwi forest reserves as products and processes mediated by social-cultural actions and reactions of people, their historical experiences as well as the multiple economic, ethical and psychological contexts of the site (Stokol et al., 2013). The social economic welfare of people in the Pugu and Kazimzumbwi community depends on forest services, while the quality and quantity of the forests are shaped by people's economic actions (Capra, 2002, 2007; Berkes et al., 2003). On the other

hand, the actions of the people are mediated by the subjective learning interactions that people encounter in the ongoing forest management activities. It is therefore insufficient to address forest development in terms of changing forest practices without addressing the interface where people encounter knowledge. Are the encounters potentials for developing learning? What are the material and ideational conditions that enable or constrain learning? Does any learning occur? How and why does learning occur in terms of the process interactions? These are some of the core questions explored in this research. The research aims to understand the contextual specific needs of learning, social change and transformations at the Pugu and Kazimzumbwi community.

### 2.6.6.2 Adaptation to forest practices and learning

The term 'adaptation', as used in this section, is described by Cundill et al. (2014) as implying a journey through which individuals or groups of people gain knowledge, construct meaning and make sense from new assumptions by collaborative participation in management of issues. Cundill et al. (2014) described the concept of adaptation from the viewpoint of communities that are learning to cope with multiple uncertainties ranging from vulnerability to climate change impacts. They stated that "adaptation, particularly at community level is often a complex process that involves multiple linked steps to identify and learn about risks, evaluate possible responses, create enabling conditions, mobilize resources, choose and implement adaptation options, and revise choices with new learning" (p. 6). The process of adaptation that Cundill et al. (2014) described is understood in and through learning processes where individuals meet, validate and accommodate new assumptions. As people expand their knowledge of new ideas they gain power to reshape the assumptions in ways that are culminated in changes of practices (ibid.). Many educational and sustainability scholars support the idea of a characteristic complex pathway through which individuals need to learn to adapt to new assumptions (Keen et al., 2005; Glasser, 2007; Vare & Scott, 2007; Jackson, 2008). Keen et al. (2005) acknowledged the complications in understanding the learning capacities of human individuals and the influence of individual intentions, interests and choices for adaptation to systems, as described below.

> Human reactions can vary greatly across space and time in response to changing values, contexts, incentives or understandings … when we assign a goal or a purpose to systems, we must again recognize that this purposefulness is the product of subjective human values and thus always open to ongoing re-validation and negotiation…(Keen et al., 2005 p. 11)

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This vision by Keen et al. (2005) is not far from the basic framework of social learning and transformative learning observed in section 2.6.5.3, where human reflexivity reshapes the learning projects within individuals. Reflexivity also mediates the processes of human adaptation in Cundill et al.'s (2014) study, since the directions of change in a community are not pre-determined. Cundill et al. (2014) essentially articulated the basic steps of an open-ended model of reorienting social learning to support community adaptation to climate change challenges.

This quest to emphasise learning processes in people's adaptation to natural systems resonates with efforts to strengthen collaborative learning amongst natural resource stakeholders (Pahl-Wostl & Hare, 2004; Keen et al., 2005; Muro & Jeffrey, 2008; Pahl-Wostl et al., 2008; Cundill et al., 2011). Keen et al. (2005) discussed management approaches that explicitly favour social learning among groups of multiple stakeholders. They identified major pitfalls that underlie most conventional participatory management approaches, which fail to deliver learning objectives and social change (ibid.). In addressing these pitfalls, Keen et al. (2005) proposed a transdisciplinary approach to environmental management by consolidating the strengths of other participatory methodologies into systemic reflections. The conceptualisation of learning through multidisciplinary systemic relations was also mentioned by Wals et al. (2009) when they described social learning as a process of systemic inquiry. Wals et al. (2009) theorised learning systems as components of larger contexts of thinking and understanding that are connected to relations of diverse social phenomena.

### 2.6.6.3  *Adaptive collaborative management*

The term 'adaptive' as used in this section was described by Cundill and Rodela (2012) as the various modes of operations in which social inclusions, collaborations and communicative co-operations across diverse groups in resource management is emphasised. There has been extensive work on adaptive collaborative management in learning interrelations that occur in various settings of natural resource management. (e.g. Olsson, Folke & Hahn, 2004; Plummer & Armitage, 2007; Armitage, 2008; Cundill & Fabricius, 2009; Plummer, 2009; Plummer, 2012; Cundill & Rodela, 2012). Plummer (2012) observed that the roots of adaptive collaborative management lie in the initiatives to advance the existing collaborative management practices that dominated the past twenty-five years of field practices. The turn towards adaptive collaborative management in the mid-90s marked the joining of collaborative management with adaptive management practices (ibid.). Plummer (2008) claimed that the merging of the two approaches aimed to reconsider the role of

stakeholders'relational learning around resource management systems. Plummer (2008) suggested that adaptive collaborative management promotes understanding of stakeholders' interests between different actor groups and their roles in the collaboration. Thus, learning is seen as a relational medium that enables people to understand each other's interests and learn from diversity (Pahl-Wostl & Hare, 2004; Pahl-Wostl, 2007; Muro & Jeffrey, 2008). Pahl-Wostl (2007) emphasised relational structures as essential for enhancing technical support and institutional arrangements for resource governance.

Learning in operating adaptive collaborative management systems is characterised by a series of repeated cycles of learning by doing (Gunderson, Carpenter, Folke, Olsson, & Peterson, 2006; Plummer, 2009; Cundill & Fabricius, 2010; Plummer, 2012). The iterative learning process enhances flexibility and adaptability within different parts of the learning systems. System flexibility is an identified potential for enhancing collaborative productivity, resilience capacity and sustainability (Plummer, 2012). Plummer 2012 described adaptive collaborative management as:

> Collaboration among heterogeneous actors with diverse interest, institutions that are flexible and nested across scales and levels, and analytic deliberation that develop understanding through multiple knowledge systems; building trust through repeated interactions; and fosters learning and adaptive and continuous feedback through continuous feedback. (Plummer, 2012, p. 4)

Plummer (2012) also identified the process of institutional rearrangement to support systemic adaptive management as an important feature of an adaptive co-management structure. He recommended an institutional arrangement for enhancing resource governance and promoting adaptive capacity of the systems. This notion of enhanced governance to support adaptive management was also supported by Cundill and Fabricius (2010) and Plummer, Armitage and deLoë (2013). Cundill and Fabricius (2010) defined resource governance as "interactions among structures, processes, rules, and traditions that determine how people in societies make decisions and share power" (p. 1). They further described the role of resource governance as the monitoring of roles and responsibilities of stakeholders, while ensuring rights of each stakeholder to be heard.

Plummer (2012) commended the approach for its potential to manage climate change ecological systems and build adaptive capacity of social-cultural systems to cope with the impacts of climate change. This wasfurther supported by Plummer and Baird (2013) who recommended adaptive co-management for addressing critical challenges of climate change

implications for forestry communities. Studies that link adaptive co-management to climate change management are of interest to this research as they can ground REDD project mechanisms in adaptive collaborative approaches in the Pugu and Kazimzumbwi community. REDD at Pugu and Kazimzumbwi was designed to re-structure institutional arrangements for governance of forest resources through enhancement of carbon stocks.

### 2.6.6.4  Learning perspectives on climate change

Community learning in social-ecological systems is essential for empowering communities to understand the nature of climate variability in this era of climate change crises (Cundill et al., 2014; Wals & Corcoran, 2012). For instance, the International Institute for Environment and Development has been, for years, practising strategies to enhance learning-oriented thinking towards climate adaptations (IIED, 2013). The institute has developed a Participatory Learning and Action framework for supporting and enhancing community learning through sharing of local climate adaptation practices. O'Brien, O'Keefe, Meena, Rose and Wilson (2008) examined climate variability in Tanzania and observed an increased vulnerability of local communities as an indicator of climate change impacts. Diverse forms of climate variability are manifested in seasonal floods, droughts, habitats destructions and escalated poverty driven effects that lead to changes in land use patterns (FAO, 2007; United Republic of Tanzania, 2007c; O'Brien et al., 2008; WWF, 2012; Bindoff & Stott, 2013). Bindoff and Stott (2013) argued that the rapid increase in global temperatures is a result of human actions. They reported rapid increases in temperatures from anthropogenic factors, which signal the existing connections between human driven actions, human knowing and social practice. They argued that "it is virtually certain that human influence has warmed the global climate system. Anthropogenic influence has been identified in changes in temperature near the surface of the Earth, in the atmosphere and in the oceans …the water cycle and some extremes" (p. 871).

As a result of their assessment work in Tanzanian communities, O'Brien et al. (2008) recommended a change in people's mind-sets and behaviour, as they observeddominating resistancein people against building adaptive and resilience capacities. However, their assessment did not reveal potential mechanisms for advocating changes in people's mind-sets and behaviours. The lack of learning strategies and the taking for granted of educational methodologies in changing people's behaviour may create gaps in achieving developmental challenges. This thesis explores both institutional and individual potential for community

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learning and social changes. The study is an attempt to address the connections between the learning mechanisms employed by participatory strategies and the learning potential, possibilities and limitations for community learning at the Pugu and Kazimzumbwi community. The Tanzania National Adaptation Programme for Action highlighted fourteen priority areas for addressing community adaptation to climate change impacts (United Republic of Tanzania, 2007c). In the action programme, collaborative community learning has been identified as apotential area for enhancing adaptive capacities across prioritised sector areas, which included forestry. Community learning is proposed for the reshaping and reorienting of practices, improving coping strategies, adaptability and transforming behaviours. The adaptation programme also proposed some adaptive changes in forest management for communities. These included the monitoring of habitat destruction, adopting new energy technologies, and enhancing collaborations and community participation. Bangay & Blum (2009) identified these proposed actions as indicating a need for serious engagement with contexts of education in communities. However, there is still a vague understanding regarding what needs to happen at individual or community levels for the programme to achieve proposed adaptations and changes in people. This includes the how and why people understand problems, reflect on realities, examine options, create ideas and choose to adopt or reject the proposed changes (Mezirow, 2003, 2004, 2009). Bangay & Blum (2009) hinted that, although education is generally acknowledged for addressing climate change, the real effect of education and learning in mediating adaptation and mitigation measures is not yet fully recognised in practice.

Denton and Wilbanks (2013) discussed the complex challenges caused by interplays of climate issues, social issues and ecological system services with human livelihoods and sustainability management. They elucidated the importance of influencing transformative changes in political willpower, economic development, and the broader social and cultural styles. Their work, a contribution to the Intergovernmental Panel for Climate Change report (2013), expressed the need for a change of structural arrangements of technical support systems for adaptation and mitigation of climate change problems. Denton and Wilbanks (2013) emphasised the role of political willpower in enabling and supporting transformative innovations.

> Although transformations may be reactive, forced, or induced by random
> factors, they may also be deliberately created through social and political
> processes … may require broader-based social discourse … and iterative

institutional learning … on the bases of growing evidence, knowledge, and experience. (Denton & Wilbanks, 2013, pp. 3, 29)

The focus on transformational changes in addressing climate change adaptation and mitigation measures in societies eventually become an emergent discourse in the area of climate change management (Jones & Carabine, 2013; O'Brien & Sygna, 2013). According to O'Brien and Sygna (2013), the aim of the focus on transformation processes is to let go of the business-as-usual styles of previous adjustments that produced unsustainable changes. The previously deployed adjustments proved ineffective in eradicating tough problems, such as the challenges of climate change management (O'Brien & Sygna, 2013). My research interests in transformative processes and mechanisms in facilitating learning interventions for climate change benefited from the existing transformative agenda in the climate change arena. O'Brien and Sygna (2013) defined a transformational approach in climate change as follows:

> Transformation … defined as physical and/or qualitative changes in form, structure, or meaning making … It can also be understood as a psycho-social process involving the unleashing of human potential to commit, care and effect change for a better life, or an internal shift that results in long-lasting changes in the way that one experiences and relates to oneself, others, and the world … note that transformations can be deliberate or forced, depending on the level of transformability of the system. Transformability is defined….as "the capacity to create untried beginnings from which to evolve a fundamentally new way of living when existing ecological, economic, and social conditions make the current system untenable." (p. 1)

O'Brien and Sygna's (2013) model of transformation (adopted from Sharma, 2007) displays the integration of three spheres of change practices: the **practical** measures, the **political** systems and **personal** perspectives on issues. The assumption behind O'Brien and Sygna's (2013) transformation ideas is congruent in many ways with the theoretical assumptions that underlie this present study, as shown in Chapter Three, and also with the contextual circumstances of the Pugu and Kazimzumbwi community, as described in Chapter One. The learning circumstances of the Pugu and Kazimzumbwi community assume a change-oriented demand at the levels of practical investments, political influences and personal perspectives, as expressed by O'Brien and Sygna (2013). The REDD project mechanism is concerned with influencing changes in the intertwined spheres, so as to reinforce each other's effectiveness in rolling out the changed forest practices and consequently transforming the community.

## 2.7 TWO INNOVATION FOCUSES FOR MANAGING FOREST PRACTICES

This research aims to follow up on two innovation foci in investigating learning at Pugu and Kazimzumbwi, as introduced in section 4.4.1.1. The two innovation focuses are the **Forest Management Enforcement Practices** (FMEP) and **Forest Management Incentive Scheme Practices** (FMISP).Coupling the two innovations was explicitly mentioned in output five of the project document for piloting REDD at the Pugu and Kazimzumbwi Forest Reserves community (WCST, 2010). Preliminary data collection during the early stages of setting up this research reflected patterns of relationship in the implementation of the two innovations in PKFR (Alvesson, 2011). Thus the research built on these preliminary findings from the PKFR context to link the two lines of forest management innovations in investigating social learning and transformations.

Albers and Robinson (2011) described the popular use of two forest management innovations, the (forest enforcement and incentive schemes) by forest managers for enhancing management of forest resources in developing countries. They conducted their study in a number of countries, including Tanzania. They confirmed the use of both forest enforcement practices and forest related incentive schemes in meeting the broader forest conservation objectives for protecting resources. Combining the two innovation techniques was aimed at providing rewarding incentives to communities for abstaining from illegal use of forest resources (ibid.). A study by Jones (1999) on land and water resources management in the Uluguru Mountains in Tanzania also reported frequent use of incentives to remunerate communities for conforming to agricultural regulations and methods that conserved soils and water. Cundill (2010) also mentioned the importance of economic incentives, among other factors, as prerequisites for building learning agency around collaborative learner communities. An extensive study by Sunderland and Ndoye (2004) in Africa, described how the idea of promoting incentives was widely applied in forest communities in Africa in the protection of forests. They specifically focussed on promotion of non-timber forest products as sources of income for subsiding timber harvests in forest communities of developing countries. Promoting incentives or income as a way of enhancing forest conservation was, according to Sunderland & Ndoye (2004), introduced in the nineties in order to lessen the impacts of human dependency on wood resources and the conversion of forest lands to agriculture.

As explained in section 1.3.3, the guidelines for participatory management of forests in Tanzania emphasised the idea of combining forest enforcement practices and forest incentive

practices. The guidelines, however, did not clarify the mechanisms that could enable the two processes to reinforce each other. In both the guidelines for Community-Based Forest Management and for Joint Forest Management, the aim was to outline management procedures for prospective partners entering participatory schemes. The guidelines were not designed to explicitly inform the coupling of incentive schemes with forestry-related threats, such as forest degradation from tree harvesting, invasive farming and sand mining (United Republic of Tanzania, 2006).

The Participatory Forest Management (PFM) guidelines were also not descriptive enough to inform PFM aspiring partners, especially rural communities, on the mechanisms for sharing benefits out of gains accrued from forest resources. Where management partnerships involved national forest reserves (like in Pugu and Kazimazumbwi), the structural mechanism for the sharing of benefits was even more complicated, since most of the forest reserves are not for production purpose (United Republic of Tanzania, 2007a). At the Pugu and Kazimzumbwi community the expected benefits from reserve forests are limited to loyalty from licensed harvests, confiscated forest materials, tourist revenues (if any), possible harvests of herbal plants, and firewood. However the national guidelines for joint management of forest reserves do not show how income sharing between community partners and the government could be practised. The guidelines do not show how partners could share responsibility in monitoring logging, harvesting licenses and the revenues from forest product. The national guidelines for joint forest management (2007a) briefly mentioned proportional rationing of benefits between shareholders:

> Forest management costs and benefits must be "balanced" – in other words if communities are undertaking approximately 40% of the forest management responsibilities (cost), they should expect to receive approximately 40% of the local forest benefits. Making JFM agreements "unbalanced" will mean that they are not sustainable in the long term and do not contribute to the longer term goal of poverty reduction … These ratios have been developed based on the agreed principle that there should be a match between the amount of management responsibilities that a community takes on, and the amount of benefit it gets out. (United Republic of Tanzania, 2007a, pp. 7, 10)

This present research is not analysing policy statements for clarity or practicability but the issues of benefit sharing appear to hold a significant position in the object of study through people's participation in project activities. The PFM status report (2006) also expressed concerns about unclear articulation of PFM procedures for engaging joint management partnerships. Both the Joint Forest Management guidelines (2007) and the National Forest

Policy (2008) did not give weight to the concept of benefit sharing as a mode of ensuring successful partnerships in reserved forests. The rural communities, on the other hand, at least from empirical experience of PKFR, regarded the concept of benefit sharing in forest revenues as the heart of joint forest management partnerships as expressed in Box 6.1. It is indeed fundamental for policy makers to understand this and extend proper attention to guide success of joint forest management practices. Otherwise, policy guidelines should be flexible enough, through iterative learning, to respond to feedback from field implementations and update joint forest management procedures accordingly. This could form part of structural reforms and necessary adjustments to support joint forest management practices.

## 2.8 ALIGNING PHILOSOPHICAL THEORIES IN SOCIAL LEARNING CONCEPTS

### 2.8.1 The ontology of the concept of social learning

This chapter has described the emergence of social learning from educational perspectives in socially embedded, multi-disciplinary, iterative learning processes (see sections 2.6.5 and 2.6.6 above). It also explained that the learning process came to inhabit the practices of natural resource management (Scott & Gough, 2003; Pahl-Wostl & Hare, 2004; Vare & Scott, 2007; Muro & Jeffrey, 2008; Wals et al., 2009; Lotz-Sisitka & le Grange, 2010; Rodela et al., 2012; Wals & Corcoran, 2012). As indicated in section 1.6, social learning is a key concept in this present research and thus it required further clarification. In Chapter One of this thesis, I described the context of learning in the Pugu and Kazimzumbwi community and identified qualitative case study methodology as a framework adopted for this research.

Both Wals and Corcoran (2012) and Kagawa and Selby (2010) wrote about challenges of working with communities on climate change related problems, regarding them as unique learning grounds. Wals and Corcoran (2012) specifically expressed the ambiguity of conceptualising learning ideas in climate change interventions. "Times of accelerated changes" influence how learning occurs (p. 23) and this creates a context in which learning is characterised by "uncertainty, complexity, and contestation" (p. 24), making for a complex ontological context for social learning and social learning research. Similarly, Kagawa and Selby (2010) termed the learning spaces in the contemporary world as equivalent to "living and learning in interesting times" (p. 276). They also acknowledged the challenges of climate change impacts as creating new circumstances for learning and action (that are unknown as yet) in such 'interesting times'. These observations challenged me to account for a socially

oriented image of learning in the PKFR community that addresses climate change issues, and I realised that this task might not be easy, given the changes, uncertainties, complexities and contestations that could be present.

### 2.8.2   Aligning social learning with social theory

Given the complex context in which I sought to do the research as explained in ChaptersOne and Two, my research was in need of an ontology that was holistic in nature and that could help to explain the emergence of social learning in such a context. Baskhar (2011) described the realist ontology as holistic relative to constructivist frameworks, since it recognises a reality which is inherently stratified. O'Donoghue (2006) acknowledgedthe power of realist ontology, and indeed the realist social approach, for its reflexivity in iterative excavations of social matters around phenomena. Sayer (2000) described critical realism as effective in intensive research that seeks to interpret social entities in their natural contexts, examining their ways of occurrence, reasons for occurrence, and relationships formed. My conceptions of particular definitions of the social learning processes (described in section 1.6) and the context in which the learning is researched (described in section 1.3) has influenced the choice of theoretical frameworks that have guided this study (Easton, 2010; Sayer, 2000).

Lotz-Sisitka (2012a; 2012b) suggests a holistic view in approaching social issues that are embedded in human lives. She identifies practitioners' weaknesses in adhering to multi-disciplinary layers of human-oriented knowledge. Lotz-Sisitka (2012a; 2012b) recommend a holistic learning landscape that looks at connections between the learning offered, the agency formed and the change produced, and that is grounded in ontological depth perspectives. She noted that missing the links could lead to an ontological and epistemological collapse in terms of knowledge production. Lotz-Sisitka et al (2012) based their argument on an analysis of social learning processes as grounded in realist ontology;they recognised that social learning processes are emergent from ontologies, and are not separate epistemological processes, but are related in ontological, epistemological and axiological dynamics. Rodela et al. (2012) also described the impact of losing track of ontology and epistemology in locating methodology for learning-based research. Rodela et al. (2012) emphasise the importance of such linkages after reviewing learning-based research and uncovered some collapsed ontologies, epistemologies and methodologies in the studies. They indicate that case study research appears to give the best account of the epistemological and ontological relationships that exist in social learning research.

My interest in working with the Pugu and Kazimzumbwi community also includes ethical commitments, as I sought to develop a fair account of learning for the local community. For this reason I sought insights into the research objectives relative to previous conservation efforts that contributed in addressing community issues at the Pugu and Kazimzumbwi site. The attention to contextual issues was complicated and overwhelming. I needed a well-informed social explanatory critique that could cut across systemic issues identified in the context of Pugu and Kazimzumbwi. I was moved by the wisdom of Smyth (2004) who defined socially systemic learning as essentially a process of nurturing social changes. His definition also stressed the time dimensions across which changes occur in socially-systemic learning events, representing present experience, past and future plans. Smyth (2004) provided a useful description of temporality in social learning structural processes that assumes that present learning is void without the understanding of past circumstances leading to its emergence. This is similar to the social realist view of Archer (1995) who explained social experiences (such as learning and reflexivity) as emergent from previous events and socio-cultural conditioning. Other researchers working with Archer's theory in environmental education have shown that learning is also emergent from social-ecological context and histories (Belay, 2012; Lindley, 2014). Learning is also void if there is no understanding of the anticipated outcomes. Thus, social learning occurs across lifetimes of interlocked events and experiences that are shaped by generative mechanisms. Within this social realist perspective the understanding of social learning is not reduced to presently experienced learning details only.

As such, a realist social theory (discussed in more detail in Chapter Three which follows this chapter) addresses learning at both individual and community levels by aligning emergent properties of learning with empirical changes in forest practices over time. The theory allows for exploration of time in learning landscapes, emergent properties across learning interactions, analytic separation of social entities and their relationships. Realist social theory provides the tools to analytically discern generative mechanisms from socially intimate dimensions of human affections, such as anxiety, reflexivity, intentionality, commitment, satisfactions and discontents. Since most of the affection domain may not be visible, the realist ontology provides for explanations of silent powers that generate in living systems.

As indicated in section 1.6.3, Practice Theory is also adopted for its assumption of subjective arrangement of practices in mediating social interactions, including learning in forest activities (Kemmis et al., 2014). Practice theory was seen to be of relevance to the

community's life at PKFR since the people of PKFR learn through their engagement in forestry practices. This research underscores the bridging of ontologies between conceptualised terms of social learning and the theoretical frameworks that re-contextualise the empirical concepts into universal assumptions. Observing the connections between ontology and epistemology as also shaped by temporality (axiology) may help to eliminate possible incoherence between concepts and theories in my study, as cautioned by Lotz-Sisitka et al (2012) and Rodela et al. (2012). In this study I have therefore sought to underlabour the concept of social learning and transformative learning with a critical realist ontology that provided the social realist analytical tools I used, and which offered causal explanations of learning processes. These theoretical perspectives will be discussed in more depth in the next chapter.

## 2.9    CONCLUSION

Chapter Twohas described the history of events in the conceptualisation of education. The history of education and learning has regarded education as a medium for development and environmental well-being. The chapter explored the evolutionary origins of major concepts of social learning and transformative learning, which were introduced in section 1.6 as key concepts of this research. The discussion of the origins, developmental trends, challenges and critiques were partly aimed at clarifying these key concepts. The lineage of key concepts also clarifies the development path of this research during the study process. Understanding the ontology of the object of study is critical in identifying epistemological orientations and research methodology. The last part of the chapter aimed to briefly introduce the theoretical perspectives of the study, which will be expanded in the following chapter.

# CHAPTER THREE: PHILOSOPHICAL AND THEORETICAL FRAMEWORK

## 3.1 INTRODUCTION

This chapter presents the philosophical and theoretical framework of the study (see section 3.2). It starts by discussing the realist ontology and epistemological orientations that underlabour the research and the perspectives on social learning as briefly described in Chapter Two. As already mentioned in Chapters One and Two, this study adopts two 'meta-theories' to guide the research process: the realist social theory and social practice theory that are described in more depth in sections 3.3.1 and 3.3.2:

> (i) **Realist social theory** (section 3.3.1) as worked with in this study, draws on three tools, namely the morphogenesis/stasis model, the concept of analytical dualism, and the concept of emergent properties. The theory and its three tools were developed by Archer (1995) in an attempt to develop a social orientation to the realist analysis of social entities. She in turn drew on the critical realist stratified ontology of Bhaskar (1975) to inform her social realist theory. This chapter describes how the tools are used to contextualise and describe specific forest events using a social realist perspective. It also explains how some generative mechanisms influence social interactions and changes of properties and powers of the entities.

> (ii) This research also works with **social practice theory** (section 3.3.2). Social practice theory makes a valuable contribution to this thesis because it views human life systems as a form of practice interaction in which changes in practice arrangements influence social change, including learning processes. Practice theory emerged in the seventies as a form of social theory that is centred on social practices (Grenfell, 2008). It has synergies with social realist theory as Archer (1995) argued for a primacy of practice in social realist theorising. The research employs the three interlinked forms of practice dimensions described in practice theory, namely the material economic conditions, the cultural discursive, and the social-political conditions to describe a unit of social interaction in which learning occurs. These three conditions provide space for doing practice activities, thinking/using language, and developing social and political relations in the activities, respectively (i.e. doings, sayings and relatings).

This chapter further describes the substantive theory of the research (section 3.3.4). Substantive theory, as used in this research, is constructed as a framework produced from concrete tenets of concepts of social learning, transformative learning and social practices as they were considered to be relevant to the real context of the study. The theory is used to develop five indicators of learning evidence in the context of transformative social learning (section 3.3.5). The five indicators are subsequently used to identify learning processes from empirical evidence as shown in Chapters Five and Six.

## 3.2 THE ONTOLOGICAL AND EPISTEMOLOGICAL POSITIONS OF THE STUDY

Lotz-Sisitka et al. (2012) and Rodela et al. (2012) emphasised the importance of locating the ontology and epistemology of social learning research in relation to theoretical accounts and methodologies (see section 2.8.2). Section 2.8 describes the foundation forfinding coherence between the main concepts of this study and the theoretical ontology suitable for the study. Dillon and Wals (2006) also described the importance of locating environmental education research in relevant ontology, epistemology and axiological positions. They based their arguments on relating research methodologies, framing of inquiry methods and the worldview (ontology) that defines the kind of knowledge (epistemology) about the research object. They argued that:

> … the kind of questions we ask, the purpose for asking them in the first place, how we ask them, to whom we ask (and whom we exclude), how we value people's responses, how we relate to those who partake in a study, who is to benefit from the study, and so on, are worldview-laden. (p. 553)

In this research I see ontology not only as 'worldview' (as used by Dillon and Wals in the citation above) but as 'emergent world and worldview' as used by Bhaskar (1993) in his stratified ontology. The purpose of this study is to explore the existence of, and further openings for transformative social learning in the Pugu and Kazimzumbwi community. The research objective was to examine how the learning occurs, why it occurs and what conditions govern the processes. Thus, this research examines the nature of occurrence of social learning, as explained in section 2.6.5 and section 2.6.6. This studyis also aware of the complexity of issues in social learning communities that are under threat of climate change problems, like the community of Pugu and Kazimzumbwi (Lotz-Sisitka, 2014; González-Gaudiano & Meira-Cartea, 2010, see also section 2.6.6.4). As explained in Chapter Two, learning in this research is recognised as ongoing, practice-based, socially and contextually reflective, change oriented, and subjective. Those characteristics constitute the ontology of

the object of study (Elder-Vass, 2007), which is also described in section 2.8.2 in the context of the philosophy of critical realism.

Danermark et al. (2002) discussed the links between useful theories that describe the object of study and the empirical methodologies, which are defined by the object of study. They advised researchers look for connections between the nature of the object of study, the theory of the study, and the methodology of the study. Thus, this research is positioned in critical realist ontology for its relational reality, which allows the study to explore learning openings and emergence at varying levels of social realities. Realist epistemology, which is constructed and interpretive, is suitable for knowledge construction at different levels of learning (Sayer, 2000). Flexibility in separating different strata of reality analytically for social research (critical realism) may promote the identification of power relations where issues of human agency, social justice and change emerge. This entitles critical realist philosophy to claim an emancipatory axiology (Sayer, 2000; Easton, 2010).

### Realist ontology and epistemology

As explained in section 2.8, realist ontology underlabours this research, based on the nature of the object of study. There have been various discussions on the existence of multiple versions of critical realism which have emerged since the initial development of critical realism in the 1970s (Danermark et al., 2002; Elder-Vass, 2007; Maxwell, 2012). This study therefore works with Bhaskar's (1975/2008) original version of Critical Realism, as also worked with in sociology by Margaret Archer and her social realist theory of morphogenesis.

Bhaskar's realist perspective developed a distinction between realist ontology (i.e. the nature of the existence of things) and epistemology (i.e. the nature of acquiring knowledge about things) and also identified a layered ontology. His motive for developing the theory of critical realism was to defy both positivist objective reality and constructivist relativism. In doing so, Bhaskar introduced a transcendental realist ontology with a layered ontology that challenged both positivists and constructivists (Steinmetz, 1998; Danermark et al., 2002; Easton, 2010). Through transcendental reality, the social ontology that formed the nature of knowledge was posited beyond theobservable and experienced phenomena (Danermark et al., 2002). Transcendental reality draws attention to a deeper dimension of reality that is unobservable by humans and can only exist or act as an underlying mechanism that causes empirical events to manifest (ibid.). Thus, Bhaskar's reality is summed up by two contrasting states of reality. The first state is intransitive, which is assumed to exist independent of human experience. It

is objective and unchangeable. The second state of reality is transitive and based on the human creation of knowledge. It is subjective and liable to changes (Bhaskar, 1998; Steinmetz, 1998; Sayer, 2000; Danermark et al., 2002).

Sayer (2000) describes the transitive dimension of reality to constitute the changing discourses of scientific experiences and experiments. Such discourses tend to mediate knowledge about the objects they define or describe. According to Sayer (2000), scientific knowledge about objects is subjective and may change with circumstances. The knowledge of science, e.g. best forest management practices today may turn out to be improper once new scientific discoveries and social orientations are made. Thus, knowledge is a transitive reality, while the mechanisms within forests that allow for the constitution of forests are intransitive (ibid.). Changes in knowledge about forest systems do not change the reality of the mechanisms governing life processes of the forest, while it may change social practices in relation to the forests (e.g. management strategies or use of the forests). The objects studied by science are therefore identified as intransitive dimensions of reality, as they may stay and act in their existing forms regardless of human existence or understanding of them (ibid.). In a simplistic interpretation, critical realism subscribes to epistemological relativism by acknowledging interpretivist and constructive knowledge about objects. However, realist epistemology is uniquely influenced by transcendental realism and the depths of its layered ontology (Baskhar, 1998; Sayer, 2000;Easton, 2010).

### 3.2.1  Layered ontology

Layered ontology is a notion within the original critical realist perspective first developed by Bhaskar, that recognises three dimensions of reality with a relative existence to one another (Danermark et al., 2002). This section describes the three dimensions of reality as discussed by Sayer (2000), Danermark et al. (2002), Bhaskar (1975/2008), Bhaskar et al. (2010), Shipway (2011), and Case (2013).

The first dimension of reality is an empirical dimension of reality, which consists of entities that are observable by man through human abilities to identify or sense things. The empirical dimension of reality is identical to observable facts or evidence that researchers generate from field enquiries. Human understanding of empirical reality is therefore mediated by experience and language, and is socially constructed. The empirical dimension of reality is

only made up of events that people can observe or experience through their power of identification. This can be a few out of a range of events that are actually operationalised.

A second dimension of reality is based on actual reality or events. This dimension consists of social entities that are actualised in nature in the form of events, regardless of whether humans can see or experience them. The actualised entities constitute the actual social events that happen in space and time or that exist in the world, including those entities that cannot be observed by people. For example, an identification of village forest committees from interviewees' accounts does not necessarily assure the researcher of the existence of committees, member composition, performance and impact on forests.

Lastly, the third dimension of reality is constituted by real properties, powers and generative mechanisms. These are those powers and properties that exist or act independently of human experience of them and that have causal powers to shape the emergence of events and empirical experiences of these events in various ways. They interact in open systems and often a variety of different causal mechanisms will interact to generate a specific event, not all of which is known or experienced by people at the level of the empirical. The domain of the real is positioned within the realm of the object of concern, meaning, the potential properties, powers and the intrinsic form of the object (Sayer, 2000). Such powers are the internal mechanisms that orchestrate social phenomena to make them appear in ways that we see them. These powers are not necessarily visible to human experience as they may choose to remain underground as potentials or liabilities of the phenomena. For instance, members that constitute a village forest committee may have different powers (e.g. education, activists, wisdom) and liabilities (e.g. opportunistic expectations, insecurity) for belonging in the committee. Together, they form part of the whole committee as a social entity in which these powers may not always be utilised or visible. Thus, a committee exists and acts through collective causality of parts, which then enacts the causal power of the committee as an entity (Elder-Vass, 2005). In other words, when you see a committee, you may not necessarily be able to know what could possibly constitute the underlying mechanisms for the existence of the committee (Sayer, 2000). The domain of real is what realists hold to exist independent of human knowledge (ibid.).

This research employs critical realism to study community learning. This is because critical realist ontology could help to explain the potential powers and liabilities within changes in forest events for learning. These could be inferred retroductively from empirical evidence

that is observed and that are possibly actualised through changes in forest practices. Changes in activities could, through this transfactual analytical process, be linked to causes and effects on forest systems, as well as human systems. Realist depth ontology can deepen the explorations of learning events at various levels of reality, as expressed by Bhaskar and Danermark (2006):

> *Ontologically,* critical realism is characterized by *a double greater inclusive-eness.* It is maximally inclusive as to potentially causally relevant levels of reality, or, to put it the other way round, it is *ontologically* least restrictive, allowing the exact nature of the determinations and their interactions to be empirically determined case by case … *Epistemologically,* critical realism indicates… the appropriate *direction* and context of *explanatory research* – from the manifest phenomena to the mechanisms that produce them, in their complex co-determination … Finally, *methodologically,* critical realism is able to move … through ontological pluralism … *a necessarily laminated system*, that is, a system that refers essentially to several different levels of reality. (p. 280, original emphasis)

When translated to a physical world, this description implies that events can be described from deeper mechanisms that produce or inhibit their occurrence or their changes. In a social world, liabilities can constitute the different meanings and dispositions that human beings hold over forest issues. This can include personal motives, intentions, beliefs and prejudices over the conscious and subconscious actions of humans regarding forests. Deeper exploration of unexercised potentials and social liabilities link the causal-effect relations to most observed social-ecological events (Maxwell, 2012).

## 3.3  META-THEORIES OF THE STUDY

As mentioned, two social theories are adopted as meta-theories inthis study. Archer (1995) defined social theories as statements of propositions or assumptions that are built from specific concepts with reference to the social world. These are subsequently supported by methodological conventions in research practices. The goal of social theories is described by Archer (1995) and Danermark (2002) as twofold. The first goal of social theories is to build images about how to conceptualise society. This means that social theories are developed to produce images of social entities and social relationships. The second goal of social theories is to serve as tools or language in social science research for approaching, analysing and explaining social phenomena (Archer, 1995). Thus, each social theory determines the social ontology of the social world that it conceptualises or aims to explain. Higgs and Cherry

(2009) suggested that theoretical frameworksdefine the knowledge base of research and so determine the type of data relevant to a social phenomenon. In other words, social theories provide alternative windows for viewing the social world. They are analogous to spectacle lenses that enable a viewer to see the social world as it appears to be magnified by the strength of the lens. This section introduces both realist social theory and social practice theory and their relevance to this study.

**Realist social theory**

Archer's (1995) realist social theory consists ofthree main tools, which identify the autonomy of human ability to intervene changes in structural and cultural conditioning. She developed her realist social theory to address the existing debate linking human agency with structure/culture in sociological theorisation (Archer 1995; Archer, 2010). Archer described the debate as a historical problem that tends to conflate agency with structure (Archer, 2010; Cruickshank, 2003). In an attempt to resolve that conflation, Archer developed a sociological complement of Bhaskar's transcendental realism (Archer, 1995). She described her new vision of society through the realist social lenses as follows:

> Firstly, that it [society] is inseparable from its human components because the very existence of society depends in some way upon our activities. Secondly, that society is characteristically transformable; it has no immutable form or even preferred state. It is like nothing but itself, and what precisely it is like at any time depends upon human doings and their consequences. Thirdly, however, neither are we immutable as social agents, for what we are and what we do as social beings are also affected by the society in which we live and by our very efforts to transform it. (Archer, 1995, p. 1)

This research uses realist social theory as a methodological and analytical tool for the conceptualisation of community learning through the interplay between community agency and forest structures.

*3.3.1.1 The morphogenesis/morphostasis model*

The morphogenesis/stasis model was developed by Archer in 1995 as an attempt to address conflations on causal autonomies of structure/culture and agency. The morphogenesis/stasis approach is a model with a realist ontology that illustrates the operations of structure and agency in a continuum of cycles (Archer, 1995). The model runs in two imaginary cycles that are arranged in sequences of endless processes. The two cycles lead to a continuous process

of reproduction or elaboration of the structure as an end product, as shown in Figure 3.1 (Archer, 1995). The products of the morphogenic cycle may bring about subtle changes in social entities while those of a morphostatic cycle sustain the forms of social entities (Archer, 1995; Elder-Vass, 2007).The changes from a morphogenesis cycle produce elaborations or reformation or reorganisation of structure or culture as agentic powers intervene. This process is termed 'structural elaboration'. The sustained forms of social entities from the morphostasis cycle result from a reproduction of the structure and culture without altering their forms. Figure 3.1 presents the imaginary arrangement of the nature of the two cycles. The structural product from elaborations may form the settings of $T^1$ for the next cycles, as shown by feedback line (A) in Figure 3.1. The reproduced structure at $T^4$ may be recycled to social-structural interactions at $T^2$-$T^3$ for further interplays, as represented by feedback line (B) in Figure 3.1



*Figure 3.1: Imaginary endless cycles of - structural conditioning/social interactions/structural elaboration (Source: Archer, 1995, p. 157)*

The morphogenesis/stasis cycles are built on the assumption of temporality of events. The model regards the conditioning of structure and culture at time $T^1$ to pre-date human actions. This assumes that human beings at any point in time come to inhabit a pre-defined world of social structure and of cultural systems. Time $T^1$ is, therefore, a structural condition that supports human life. In occupying space in the world, human beings introduce actions over the existing structure and culture, which leads to social-structural/cultural interactions of time ($T^2$-$T^3$). The interplay between human actions and the structure and culture may lead to transformation of the social structure or the cultural systems that support the human actions. The transformations can manifest in temporal conditioning of the structure and, hence, elaborations. Therefore, structural elaboration post-date those human actions that altered and reshaped it (Archer, 1995, 2007a). In addition, it is important to note that, human beings are

also liable to temporal changes in agency as they act to transform the social structure/cultural systems, representing the dynamism of potential social changes occurring at structural and cultural system level and within agents acting in relation to these systems.

Figure 3.1 is also a diagrammatic representation of spatial temporality in forestry-human interactions, representing an imaginary cycle of time ($T^1$-$T^4$). The initial part of the cycle, labeled $T^1$, assumes the structural material and economic conditioning that supports human beings to work on forest projects. The subsequent part, labeled $T^2$-$T^3$, assumes that human agency acts on structural materials and cultural systems through social interactions. The cycle at time $T^4$ represents products of social-structural/cultural interactions. This part of the cycle is characterised by an altered structure (morphogenesis) and reshapes human agency, though sometimes the form of the structure may be retained (morphostasis). In Figure 3.1, time $T^4$ shows two possible end results, depending on the nature of interactions at time ($T^2$-$T^3$). One possibility is of altered structure and the other possibility of retained structure.

This research used the morphogenesis/stasis model to describe changes in forest events. The research outlines continuous morphogenesis/stasis cycles of forest changes that occurred within a time-frame of approximately 15 years from 2000 to 2015 (Archer, 1995; Archer, 2007a). In a practical world the material conditioning at $T^1$ may include the forest policy, rules, management plans and resource investments proposed by the participatory project approaches. The new approaches were designed in response to past experiences in forest interaction, i.e. previous management policies, human actions and forest processes. Thus, new forestry ideas emerged from past interventions. They were, for instance, formed from policy updates and reviewed regulations. The structural and cultural conditioning of the new approaches may also include the state of the forest materials, social-economic capabilities, the existing practice knowledge, local beliefs, norms, etc.

The social interactions at time $T^2$-$T^3$ may represent the actions of people in terms of their physical engagement in activities over the material support provided by projects. Such interactions are also mediated by the language that people speak, e.g. inspirational meetings and talks, local campaigns, and developed metaphors. Interplay with the structure may also occur in people's feelings about the activities, personal motives and intentions. This may include people's satisfactions and their discontents, including contradictions among people and between people and the forest resources. Cause and effects in the relationships between people and structure may emerge from the interactions. Some of the cause and effects

between human actions and forest structures may inform structural processes, such as a need for policy review or other structural adjustments in investments or personnel. At such moments, humans are generating agentic powers to act on structure through thinking abilities, validating truths, constructing knowledge and making choices or decisions. This is performed in various ways since the cycle is not as linear as it looks. The timespans at the different parts of the cycle may overlap or re-adjust to accommodate changes or emerging features at any spatial and temporal moment in the living system.

### 3.3.1.2 The structure-culture dichotomy

In developing the morphogenesis/stasis model, Archer (1995) was also trying to resolve the conflation between the different states of social structure and social culture. Case (2013) highlighted that many sociologists of that time narrowly focused on structure as the only realm of social life. Archer's (1995) work aimed to elucidate the state of culture as the realm of ideation that equally serves the role of a social world of interactions that the structure serves (see Table 3.1). Ideational factors are identified as social cultural (S-C) conditions, which ultimately form cultural systems (C-S). Cultural systems in human societies advance human beliefs, customs, knowledge or theories that people hold and can interact with human agency in space and time. The interactions may result in an alteration of the cultural system to form elaborations of the cultural materials, as expressed by Archer below:

> Obviously we do not live by propositions alone (any more than we live logically); in addition, we generate myths, are moved by mysteries, become rich in symbolism and ruthless in manipulating hidden persuaders. But these are precisely the stuff of S-C interaction, for they are all matters of inter-personal influence … All of this takes place beyond or outside of the canons of logic, whether knowingly on the part of agents (proclaiming the mystery of faith), whether imposed on unknowing others (recipients of symbolic machinations), or whether as that state of semi-knowledgeability called 'public opinion'. (1995, p. 180)

Cultural systems, as shown in the quote, do mediate the interactive practices of human beings. Culture is discursively transmitted in humans' abilities to think, talk, do activities and relate to others (Kemmis & Mutton, 2012; Schatzki, 2012). Culture is part and parcel of the subjective domains of people's lives that can be changed and which reshapes other domains.

*Table 3.1: Showing equitable relevance of structure and culture in the social systems (Case, 2013, p. 43)*

| Domain | Conditioning | Influence |
|---|---|---|
| Structure | Social-structure – resources, roles | Social-interaction |
| Culture | Cultural system – logically interrelated propositions | Social-cultural interactions |

Maxwell (2012) viewed the cultural approach as a useful part of the symbolic world of humans. He suggested culture includes certain mental phenomena that are significant components of human 'meaning' (p.15). He also argued against the reduction of mental phenomena to physical phenomena. He described the autonomy of mental phenomena as equally essential to cause and effects of social phenomena. He stated that "the meaning, thoughts, beliefs, emotions, values and intentions of individuals are neither abstraction from behavior nor reducible to neurological or other physical phenomena" (p.16). Archer (1995) also described structure as physical in nature, such as rules and material conditions, within the actual arrangements of social organisations. She suggested that both structures and cultures are real entities that exercise relational properties and potentials upon their occupants. Both structures and cultures are expanded through interactions with agency and may in turn reshape that agency. Archer asserted that the cultural-agency analysis in the morphogenesis/stasis cycle is similar and parallel to structure-agency analysis.

*3.3.1.3 Analytical dualism*

The concept of *analytical dualism* was developed by Archer (1995) to separate the autonomies of agency from those of structure/culture for analytical purpose. Section 3.3.1.1 explained that one of Archer's contributions was to resolve a conflation in causal autonomies of structure and agency. The concept of analytical dualism was developed as an analytical tool to separate the 'people' from the 'parts'. This enables the different ontological layers in each autonomous property to be analysed separately, without chance of collapsing them into one. "Classical conflationists always advanced some device which reduces one to the other, thus depriving the two of independent properties, capable of exerting autonomous influences, which would automatically defy one-dimensional theorizing" (Archer, 1995, p. 6).

Archer (1995) addressed this problem of conflation by theorising the structure and agency dichotomy through an analytically dualist approach. The *analytical* separation of structure and agency defined their independent properties, their interconnectedness and the relative

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influence of each one on the other. Elder-Vass (2007), in support of this theory, described the separate autonomies as possessing separate causal powers. He defined the powers as the "capability of an entity to have a certain sort of causal effect on the world in its own right: an effect that is something more than the effects that would be produced by the entity's parts if they were not organised into this sort of whole" (Elder-Vass, 2007, p. 229). Through interplays between different autonomous powers, over time and spaces, the morphogenesis/stasis sequence is produced. Thus, Elder-Vass (2007) solidified Archer's recommendation that the morphogenesis/stasis model is a tool for clarifying the emergent properties of each of the social entities.

### 3.3.1.4 Emergent properties

The concept of *emergent properties* is based on describing the impact of generative mechanisms over social entities (Archer, 1995). Elder-Vass (2007) describes emergent properties as the real causal powers of individual social entities, as well as the actual causalities of collective entities that they form. Archer (1995) identified emergent properties as specified elements that influence the structure, culture and the people to cause a range of effects in the social systems. Such influences are the real sources of internal relations within an entity and with their generative mechanisms. The dictionary of critical realism (Hartwig, 2007) describes the concept of emergence as philosophical in nature and it intertwines substance properties and their constituent components producing them, as explained below:

> (1) That some substance, entity, property or system β is dependent for its existence upon some other substance, entity, property or system α; (2) that the dependence implies some form of co-variance where fundamental changes in α means fundamental changes in β; and (3) that the form, operation and consequences of β cannot be reduced to α. Thus. Through (1) and (2) implies some form of relation that may perhaps be conceptualized as non-conjunction, or irregular, and/or multiply realizable causation. (p.166)

Easton (2010) described emergent properties as elements from entities or events in social systems that are produced by the system activities. The components of activities that produce them are lower in levels than the properties of the products.Easton (2010) used biological entities to illustrate this, which are normally comprised of chemical properties, and described the autonomous properties of biological entities over their chemical constituents. Social entities emerge in a similar way from the generative actions of human (biological) constitution. Archer (1995) and Case (2013, drawing on Archer's work) ascertained the

autonomies of emerged properties once the properties and powers are produced from relational causality of the underlying mechanisms. For instance, if a property, such as forest by-laws, emergesfrom relational mechanisms between forest conditions and agentic demands, the by-laws are irreducible to properties of either of the two. The emergence of social entities from generative mechanisms may also bring about social relations in entities (Danermark et al., 2002). Some of the necessary conditions for relational interaction may not be physically visible or measurable. Such conditions may come from the domain of the real, which is not observable as noted above. Thus, social scientists may need to analyse an entity in relation to its mechanisms. This relates to realist depth ontology, as discussed in section 3.2.2.

Archer (1995) described the 'golden rule' of the causality of emergent properties when she asserted the need for entities to be influenced by their internal mechanisms and natural necessity (Archer, 1995; Elder-Vass, 2007). Social relations that are internal and necessary occur when the entities involved in causing the generative property are dependent on each other. Dependence on each other occurs in relationssuch as between a learner and learner-support materials or between a learning facilitator and a learner. This kind of relation is internal and is naturally necessary since the presence of one entity depends on the presence of the other. Relations that are not internal and necessary are identified as contingent relations. Contingent relations are produced when entities that form generative mechanisms do not necessarily depend upon each other for their existence. Entities that are contingently related may under certain circumstances influence signifiant social events, e.g. closing a school due to civil war or the disruption of a project activity due to unpredictable disasters like floods or a deadly virus.

Using emergent properties as a tool for analysing the Pugu and Kazimzumbwi community can help to deepen the understanding of people's engagements in learning, which identifies the learning that produced the present agentic properties. The analysis of relational mechanisms can help in building arguments for the learning that is experienced by people through forest events (see section 3.2.2). It can also help to explain the social changes and the learning potential that may have passed without human experience (see section 3.2.2). The mechanisms can describe agentic actions over structures by identifying drivers that served the purpose of actions. This can help the research to identify relational spaces for the emerged learning, constrained learning, and social transformations (Merriam & Associates, 2002). Archer (2007a) emphasised the inherent powers of human agency for the construction of

meaning in all conceivable ideas. She emphasised the need for social researchers to understand the effects of people's personal powers for 'deliberative reflexivity' on social structures and cultural systems (Archer, 2007a, p. 13).

### 3.3.2 Social practice theory

The concept of social practice is partly a methodological tool for the conceptualisation of forest activities as constituted in practice arrangements. Practice theory also forms a meta-theory for approaching forest management activities inthe Pugu and Kazimzumbwi community. The theory also serves as a theoretical tool for the conceptualisation of learning from the ever-changing interaction of activities within forest practice arrangements (Kemmis et al., 2014).

#### 3.3.2.1 Origin of practice theory

Practice theory was developed from a paradigm of cultural theories that assumed centrality of human practices in describing the social world. Somekh and Lewin (2011) described the inherent modes of practices as core components of social phenomena. They argued that practices form the foundation from which human beings share ways of making sense of things. They termed this foundation 'doing life together' (p. 147). Schatzki (2001) claimed a practice is constituted by forms of bodily activities, non-bodily (mental) activities and background knowledge in the form of understanding and knowing things, including states of emotions.

Practice oriented social theories were originally pioneered in anthropological studies by social theorists in the seventies, like Anthony Giddens and Pierre Bourdieu (Grenfell, 2008; Hargreaves, 2011; Schatzki, 2012). For instance, Bourdieu (1977) developed his popular theory of social field and habitus, which introduced the 'logic' of practice (Grenfell, 2008). Bourdieu's concepts of social field and habitus laid the foundations for contemporary social practice theories (Anfara & Mertz, 2006; Grenfell, 2008; Hargreaves, 2011; Kemmis & Mutton, 2012). Bourdieu developed his ideas of practice theory when accounting for ideational and material worlds of people. He identified the material and ideational domains of human beings that constitute human social actions as structurally and culturally shaped (Grenfell, 2008). The theory of *habitus* postulates human actions as socially embedded, such that human beings are not always conscious of actions happening in practices. The habitus of social actions is thus placed in the practice and not in the individuals.

Recent social practice scholars (such as Theodore Schatzki and Stephen Kemmis) have advanced the application of practice theory in different contexts of social studies (Schatzki, 2000, 2001, 2012; Kemmis, 2009; Kemmis & Heikkinen, 2011;Kemmis & Mutton, 2012; Kemmis et al., 2014). Schatzki (2001) described practices as the nexus of different activities that exist in networks which create particular fields. Fields of practice are further defined by Schatzki (2001) as sites of social phenomena, such as knowledge, meaning, activities, language, social interactions, institutions and historical transformations of social life (cf. Kemmis & Heikkinen, 2011; Kemmis & Mutton, 2012; Schatzki, 2012; Kemmis et al.,2014). Schatzki (2012) emphasised the social nature of practices. He described the sociality of practice as the mutual existence of human activities, which are linked together in order to achieve a common end goal. Practices are identified as roots of human lives and are assumed to be created throughthe activities of multiple individuals (ibid.).

### 3.3.2.2  *Practice theory and social change*

Kemmis et al. (2014) have described the ever-changing process of practices in space and time as part of the human world of actions and interactions. They described three intersubjective spaces that exist within practices, namely the physical space and time, the semantic space, and social spaces. These three spaces constitute the natural arrangement of practices. The arrangements of practices construct particular forms of human practices, e.g. the practice of forestry is built from varieties of arrangements in physical space (e.g. physical work and materials of managing forests), in semantic space (e.g. the forest discourses through language as a medium of talking and thinking), and social space (e.g. social relations formed among people and between people and non-living things). Kemmis at al. (2014) suggested that a change in practices can only occur if there is a significant change or alteration in the arrangements of the practices. Schatzki (2012) also discussed the concept of social change through transformation of practice arrangements. He viewed social change as primary in the concept of practices, since he believed that "practices are sources and carriers of meaning, language and normativity" (p. 12).

Section 1.6.3 has explained practices as units of social interactions (Schatzki, 2001; Kemmis & Heikkinen, 2011; Hargreaves, 2011)and that are constituted in peoples 'doings'(physical space and time), 'sayings' (semantic space) and 'relatings' (social). Practices aretherefore socially and collectively constructed and do not emerge from individual human actions (Schatzki 2012; Hargreaves; 2011, Whiteford et al, 2009). The formation and existence of practices is mediated by other natural circumstances that occur beyond the understanding of humans (Whiteford et al., 2009). In the context of this research, forest management

approaches are regarded as practices that provide sites of social interactions through forest 'doings', 'sayings' and 'relatings' at Pugu and Kazimzumbwi community. Learning and social change occur through interactive doings of forest activities, transpired sayings and the created relations in participatory forest activities. However, as quoted below both Schatzki (2012) and Whiteford et al. (2009) noted that the body of practice arrangements have no definite form:

> Practices, however, cannot be perceived. Not only are their constituent activities spread out over space and time, but their organizations, as the organization of spatially and temporally dispersed entities, are abstract phenomena. Other means than direct experience must be seized to uncover them. (Schatzki, 2012, p. 10)

> Generally speaking, the complexity of practice is often overlooked because it is largely invisible. That is, the material and technical dimensions of practice are apparent to the gaze of society at large, but other aspects of practice generally go unnoticed … practice at any moment is being shaped by a myriad of forces; some individual and some extra-individual. (Whiteford et al., 2009, p. 25)

This section explained how the social-ecological context of learning at the Pugu and Kazimzumbwi community inspired this study to explore opportunities for transformative social learning. The examination of learning and transformative possibilities in the PKFR community across timelines and contextual circumstances is based on the conceptual features of transformative social learning processes and practices described above.

For instance, introduced forms of forest practices at the Pugu and Kazimzumbwi Forest Reserves (PKFR) could instil changes in people's ways of thinking, sense making and of constructing meaning (Hargreaves, 2011). The process of changing people's ways of meaning making may occur discursively and can spread among community members without necessarily changing individual decisions (ibid.). Schatzki (2012) suggested that people understand things through language and thinking while simultaneously developing local relations through the different roles they play in activities. Social dynamics that include learning are responses to changes in intersubjective arrangements of practices as shown inFigure 3.2 (Schatzki, 2001; Hargreaves, 2011). Figure 3.2 shows that any introduced stimulant at any point of the three wheels may influence changes in another part of the wheel and other wheels all together. Changes in material space and time may for instance stimulate relative changes in human thinking and sayings about forest materials and this may influence changes in social-political relations towards forest materials and vice versa. Thus, changes in

practice arrangements for peoples' doings, saying, and relatings are always intersubjective and related.



**Figure 3.2: Inter-subjective spaces for changes in the doings, sayings and relatings of practices**

Schatzki (2012) highlighted the significance of such social interaction for human emancipation, suggesting that human development is grounded in activities of practices. He emphasised the centrality of practice activities for change and development by demonstrating the roles of practice activities in determining, creating and sustaining different forms of social change and human development (see for comparison Archer's (2007b, 2010) view of practice for human development in section 3.3.3.2. Seen from this perspective, my research examines characteristic changes and transformation that results from learning interventions in the forest practices.

### 3.3.2.3 Practice theory and the learning process

This research uses practice theory to identify the learning that happens within practice-based interactions in forest management. In doing so, this research recognises the eligibility of

forest management activities as sites of social interaction that produce human thinking and meaning-making discourses. Learning is conceptualised from changes in arrangements of physical space in forest activities, as well as changes in the arrangement of semantic spaces in gaining language for thinking and talking about forests. Social relations that were created during the implementation of new forest approaches and in developing forestry language though forest-oriented thinking are also considered influential to people's learning, normativity and adaptation practices. Thus, social learning in practices occurs in the interactions of people with the various arrangements that influence people's feelings, ideas and ways of looking at things (i.e. worldviews).

Kemmis et al. (2014) described three forms of practice arrangement as (i) material-economic arrangements in the physical space-time, (2) cultural discursive arrangements in the semantic space, and (iii) social-political arrangements in the social space. This research drew on the three dimensions of practice arrangements to analyse people's chances of learning in the course of doing forest activities (see Chapter Seven). Kemmis (2009) argued that learning occurs when two worldviews meet (cf. Capra, 2002; 2005; Jackson, 2008; 2013; Wals, 2007; Wals et al., 2009; Wals & Corcoran, 2012). Analysing learning through the worldview dialogue assumes that learning occurs through the mediatory effects of spontaneous practice interactions that shape people's perspectives, as is diagrammatically represented in Figure 3.3.



*Figure 3.3: Diagram representing interactions between individual's worldview and the assumptions of the introduced worldviews (Source: Green, 2009, p. 31)*

Figure 3.3 represents the interplay between the worldview (assumptions) of the introduced forest management practices and the worldview (assumptions) of local people in the PKFR community. Amidst the two assumptions are spontaneous interactions of the three forms of arrangements that are changeable and transformable (Kemmis et al., 2014; Kemmis & Mutton, 2012). Through the coming together of the two worldviews the newly introduced practices need to understand the local people's understandings of forest practices and vice versa. In the process of understanding one another only those logics that appear to impress

either side of the worldview may be accepted for adoption by respective sides. The rule of the game insists on adequate understanding "within and from *the perspective of the other* as well as within and from *one's own perspective"* (Kemmis, 2009, p. 31, original emphasis). Such changes in understanding are seen as mutual learning within practice activities as the three forms of practice arrangements shape themselves (See section 3.3.3.2, Figure 3.4 for comparison of three forms of practice arrangements with Archer's (2007b, 2010) world of social orders and her thesis of a primacy of practice in reality. Their connected relevancy to forest practices in Pugu and Kazimzumbwi community is also described in section 7.5.2.). Learning across worldviews is congruent with collaborative planning in diverse interest groups that are proposed by adaptive collaborative management approaches explained in section 2.3. This perception is challenged by a social realist / critical realist view which considers depth ontology and emergent powers and properties rather than simply 'worldviews' as social constructions.

### 3.3.3 Working with realist social theory and social practice theory

Two or more social theories may be used in analysing entities, which can provide alternative orientations in viewing issues. The use of more than one theory in a research may also, if appropriately applied, display complementarity between the different viewing orientations. Danermark et al. (2002) suggested that using divergent perspectives to view the same social entity may enhance the research arguments. This section aims to explain how the use of two meta-theories, i.e. realist social theory and social practice theory are used in this research, how they complement each other via a critical realist underlabouring and how they strengthen the research arguments.

*3.3.3.1 Social realist orientations to powers of human agency*

A realist social theory, as described in section 3.3.1 and 3.3.1.3, places emphasis on the interplay between agency and structure (Danermark et al., 2002), arguing that "structure and agency are two different strata with separate autonomies in terms of powers and properties" (p. 181). Case (2013) noted that the heart of Archer's (1995) morphogenesis/stasis cycle lies within the interactions between human agency and social structures. She described the cycles as displaying the predominance of human agency in the interactions through intentional actions of humans on structures and on cultural systems. She further argued, drawing on Archer's work, that human interactions ignite structural/cultural mechanisms into powers and liabilities for causality of social properties. Archer (2010) emphasised the inherent human ability for internal conversations and reflexivity, which accounts for a *social self* (p. 9).

Through the notion of the social self, Archer (2010) identified the non-socialised dimension of human individuals. She argued that this non-socialised dimension occupies a space when individual agency is immersed in self-imaginations, which may consequently intervene or contradict with social-cultural practices. She identified the non-socialised dimension of human beings as central for enforcing the primacy of practice in reality. This is discussed in the following section.

### 3.3.3.2 The primacy of practice in reality

Archer (2007b) accounted for the *primacy of practice* in reality by identifying the priority of the *sense of self* (i.e. unsocialised self) against the *concept of self* which is social. "To be precise…our human *sense of self* is emergent from our embodied practices in reality and is thus irreducible to sociality" (Archer, 2007b, p. 13, original emphasis). Archer (2007b) further described the emergence of the *sense of self* in practice in reality to occur through personal interactions with the world which she describes as having a natural order, practical order and social order, as shown in Figure 3.4 (see also Archer, 2010). Sequential iterative encounters in human lives may begin in a natural order in which bodily understandings of selfhood vis-à-vis other things develop. This stage is less socialised as it occurs within individual embodiment in self-reflexive dialogues. A child growing up in a forest adjacent community, for instance, may become aware of some trees before knowing their names and learn that they are protected. As the child grows, it encounters the practical order in which the performative world of forest related activities manifest. Individuals' lives interact with forest lives in the course of living, working and using some forest resources and services. Of the activities, an individual may always choose what they like most or where they perform better. The individual in action meets other people and becomes part of the socialised world of the forest community. This is the world of social order in which the previous self-encounters and practical performances make meaningful contributions to the socialised world (Archer, 2007b), and which in turn are influenced by the socialised world.

| Natural order | Individual's embodiment with environment. This includes encounters with natural reality e.g. forests materials and resources, ecological conditions and the emotional concerns that emerge from the interactions, e.g. care, worries, fear etc. | Practical order | Individual's embodiment in performative practices. It is the practical order of skills development by engaging in different tasks. Positive or negative feedback informs the succes or failure of the activity, e.g. instituting new forest management practices. | Social order | Individual's engagement in a discursive social order of interactions with other people. Form relations as social beings, take positions, build identities and the emotions associated. e.g. socialisation in the roles of community groups, state actors, donor agency, NGOs etc. |

**Figure 3.4: Diagrammatic presentation showing iteratively human encounters with the natural, practical and social orders of practice reality**

Archer (2007b) described the primacy of practice as an ever-changing and ongoing iterative process of individual development, which is sustained through human reflexivity. She argued that as human beings we tend to continuously monitor the circumstances we encounter in life through our internal conversation, which responds to our personal concerns and understanding of things. This builds on our capabilities and capacities for social learning, social development and changes.

> The internal conversation is never suspended …inwardly, the subject is living a rich unseen life which is evaluative … and which is meditative. What this subject is doing is conducting an endless assessment of whether what it once devoted itself to is as its ultimate concern(s) are still worthy of this devotion, and whether the price which was once paid for subordinating and accommodating other concerns is still one with which the subject can live. (Archer, 2007b, p. 19)

Archer (2007b, 2010) strongly emphasised the sense of self in terms of internal conversation and reflexivity as intrinsic to human beings for conscious participation in the three orders of reality.

*3.3.3.3 Social practice orientations to human sociality*

Practice theory focuses on social analysis, including learning, in the practice of neither the individual nor the structure (Hargreaves, 2011). Analysing social learning and transformations using practice theory centres around practice interactions and their changes in practice arrangements (Kemmis et al., 2014). Thus, practice theory is based on the total sociality of human life. Schatzki (2012) described the centrality of sociality in practice activities as essential to humans, learning, communication and social change. Hargreaves (2011), like Schatzki (2012), challenged the conceptual ideas of putting agency at the

centreof analysis when he demonstrated the use of practice theory in analysing environmental practising and learning. Hargreaves (2011) suggested that practices occupy a middle position between structure and agency where learning of environmental issues is only determined by the practice and not by the structure or agency. He suggested that this middle position constitutes the physical space and mental space of social lives in which humans may take their learning journeys. According to Hargreaves, the process of introducing new forest approaches in Pugu and Kazimzumbwi can hardly mean to educate individuals or create individual agencies for change. He regards the new forest approaches as activities that involve people in sustainable living through participation in doing parts of activities (Hargreaves, 2011). From a perspective of practices as a focus of analysis, my research took the transpired forest activities in the lives of the people at the Pugu and Kazimzumbwi community as units of analysing social learning. However, I consider these practices in the wider context of structure/culture, agency and the morphogenesis processes after Archer (1995); without this, it would be difficult to explain change in learning and practice over time.

### 3.3.3.4 The relevance of combined theories

The research, following Danermark et al. (2002), was empowered by the use of both theories to create instruments that deepened the research explanatory power. Both meta-theories focus on social-interactions, which are at the heart of learning, and practice theory provides a way of thinking about these social interactions as collective engagements. However, social realism after Archer, helps to theorise how these practices come about or emerge, and if so how and why changes in practices occur over time, and what this implied for learning.

The Pugu and Kazimzumbwi community is a coastal peasant community, based on the settings of its structural conditioning. The community is also characterised by a longstanding Swahili and Islamic cultural-system, which contributes to the language of thinking, communication, and aspirations of the people. This has reshaped deliberative assumptions across individuals over the years. The research analytically examines the practice arrangements in the constituted sayings, doings and relatings of people, and the emergence of powers and properties over time using Archer's (1995) morphogenesis approach. Realist ontology recognises the extra social life that human beings cannot see or observe and assumes practice to emerge and to be shaped from (though not necessarily totally determined by) that space. This extra social life of human beings is embedded in the socio-cultural and social-ecological histories, as well as the contexts in which humans happen to live (Sayer, 2000; Danermark et al., 2002; Henstrand, 2006; Merriam, 2006).

Some of the fascinating logic in engaging both realist social theory and practice theory comes from synergies in temporality and historicity of structure and of practices. Kemmis et al. (2014) and Hargreaves (2011) described the temporality of practices by assuming practices to prefigure conditions for humans to inhabit and act on. According to this assumption, humans come to inhabit the prefigured practice and start to explore the world through practice-based interactions and actions before they can meet areas of interests within practices. It also assumes that people may end up in particular areas of practices, out of a range of choices of activities to which they are exposed. The temporality and historicity in structural/cultural conditioning relative to human agency is described in more detail by Archer (1995) who drew on the stratified ontology of Bhaskar (1979). The assumption holds that structures always predate the actions of human beings as explained in section 3.3.1.1 above. Critical and social realists assume that the actions of human agency occur in a prefigured structure and may come to reorganise or transform the structure/culture. The structural settings, in part embedded in practices, may have enabling or constraining properties and powers influencing human abilities to act. Human agency can thus be reshaped through the interplay in terms of oriented choices, capabilities, living styles, etc. This also influences human development (Archer, 1995; Mezirow, 2000).

### 3.3.4    Substantive theory of the research

This section outlines the substantive theory that is used to bridge the meta-theories, described in this chapter, with the conceptual framework explained in Chapters One and Two of this thesis. The meta-theories provide general and speculative assumptions that guide the fundamental philosophies in the research arguments. The meta-theories paint general pictures in conceptualising social phenomena in this study relative to other philosophical perspectives. The substantive theory comes as a domain specific theory that presents a theoretical framework to view and describe concrete domains of learning contextualised by this research. The substantive theory enables the basic understanding and gaining of knowledge about learning entities in the research (Danermark et al., 2002). For instance, the substantive theory may provide ways of interpreting contextual relations of people and the forest activities. This is described in terms of people's backgrounds, the living styles, social events and the influences of those conditions on one another (ibid.). Maxwell (2012) also described substantive theories as powerful in providing conceptual details of the key ideas of the research and their relationship to one another. The relationships can help the researcher to map out issues concerning the concepts and assemble them in ways that fit the purpose of the study. Substantive theories can be constructed from information on key ideas, collected through literature research, contextual profiles prior to conducting the actual research and

from the researcher's own experience and speculations (Maxwell, 2012). However, the model of substantive theory, as presented in Figure 3.5, is liable to epistemic fallacy, like any other constructed theories, and it may thus need information updates during the research process (ibid.).

| A | B | C |
|---|---|---|
| Social Practice<br><br>Social Learning<br><br>Transformative Learning | (1) Engage, communicate, inspire, train, build capacity, gain new ideas, new rules, new practices, plan, do work, think, talk, form relations, network, open-up, look-back, question, debate, make decisions etc.<br>(2) Empower, motivate, be flexibile, inspire, be meaningful, practice knowledge, commit, develop sense of identity, create convenience, emancipate, social justice etc.<br>(3) Think critically, be rational, validate, be reflexive, confusion, dissonance, re-think, examine, insecurity, emerging creativity, innovate, rejections, despair, praxis action. | (4) Change in understanding in individuals and groups<br><br>Change in conditions/approaches/ practice arrangements<br><br>(5) Subtle changes in practices or transformational changes |

**Figure 3.5: Diagrammatic presentation of the substantive theory of the research**

This research constructed a substantive theory from key concepts of the study, which include social learning, transformative learning and social practices, as explained in section 1.6 and expanded on in Chapter Two. The key research concepts are presented in part A of Figure 3.5. The modelling of the substantive theory identifies the main tenets of key concepts, as shown in part B of Figure 3.5. This part B represents a mixture of dynamic processes of actions and reactions likely to occur in social learning systems. Processes in part B are ongoing, non-directional and ever-changing, stimulated when the key conceptual ideas are operationalised through interactions with human agency. Similar processes in the form of human perceptions, actions and reactions are displayed in Figure 2.2in section 2.6.5.3.

In part C, the substantive theory also displays some of the possible processes or elaborative outcomes of actualised learning processes and practices. Most processes in both part B and C are ephemeral, non-linear and indeterminate and, hence, the lines separating B and C are always fuzzy and open. Learning processes happening in B or C may diffuse in either of the parts as appears necessary. The substantive theory is used to model indicators of learning evidence for the research, as shown in the next section.

### 3.3.5 Deriving learning indicators from the substantive theory

The iterative processes and learning features occurring in parts B and C of the substantive theory model in Figure 3.5 are distilled from the key tenets of the key research concepts in part A. More processes are presented in Figure 2.1. Five indicators of learning evidence, described in section 5.2, are derived from the substantive theory model as shown in Table 3.2.

*Table 3.2: The five indicators of learning evidence and how they are derived from tenets of the key concepts of the research*

| Indicator | A cluster of iterative learning processes that form the indicator |
| --- | --- |
| People's engagement | Formed from a cluster of iterative learning processes listed as (1) in Figure 3.5, e.g. communicative discourses, doing tasks, training, implementing new rules, policies and regulations, thinking and talking about project issues, etcetera (Mezirow, 2000; Schatzki, 2000, 2001, 2012; Wenger, 1998; Reed et al., 2010; Kemmis & Mutton, 2012; Cundill et al., 2014; Kemmis et al., 2014). |
| Motivation/empowerment | Formed from a cluster of iterative learning processes listed as (2) in Figure 3.5. May include people's commitments, inspirations, motivations, praxis, social justice and emancipation (Mezirow, 2000, 2003, 2004; Wals, 2007; Wenger, 1998; Hargreaves, 2011; Schatzki, 2012; Cundill et al., 2014; Kemmis et al., 2014) |
| Coping with tensions | Formed from a cluster of iterative learning processes listed as (3) in Figure 3.5. May include people's flexibility and reflexivity, critical thinking, rationalising, rethinking, creativity, innovations, etc.(Mezirow, 1998, 2009; Dirkx et al., 2006; Archer, 2007a, 2010; Wals et al., 2009; Reed et al., 2010). |
| Change in understanding | Formed from a cluster of iterative learning processes from (1) or (2) or (3) in Figure 3.5, or a combination of any of those that may lead to change in people's understanding at individual or group level (Mezirow, 2003, 2004; Wals, 2007; Muro & Jeffrey, 2008; Reed et al., 2010; Hargreaves, 2011; Glass et al., 2012; Cundill et al., 2014). |
| Subtle shifts in practices and /or transformational changes | Subtle shifts in practices are also discursively formed from any of the clusters of iterative learning in (1) to (4) in Figure 3.5. It is a product as well as a process that is ever-forming and ever-changing. Significant transformations may also develop from routinized shifts in practicesand conscious re-orientation (Mezirow 2000, 2009; Muro & Jeffrey, 2008; Pahl-Wostl et al., 2008; Hargreaves, 2011; Schatzki, 2012; Kemmis et al., 2014). |

The characteristic iteration of learning processes in natural systems is open, as explained in section 1.6. Thus, the processes are overlapping within the five clusters of indicators without definite separations, as shown in Figure 3.5 and in Table 3.2. Details of the processes are described in all sub-sections of 1.6, as well as in sections 2.6.5, 2.6.6 and 3.3.2. In Chapter Five and Chapter Six, I apply this framework to analyse learning processes and outcomes over time in relation to the two forest management practices that form the focus of the analysis.

## 3.4    CONCLUSION

This chapter explained the theoretical orientations and philosophical positioning of the study. It began with a description of the philosophical underpinning of the study, providing reasons for adopting the ontological position of critical realism and its practical uses. The chapter also described the details of two meta-theories adopted as frameworks for abductive and retroductive analysis of empirical experiences in the study. Meta-theoretical tools included the practical application of a social realist morphogenetic/static model, concepts of analytical dualism and emergent properties, and the concept of social practice. This chapter further explained the combined use of the two meta-theories as related social theories in the data analysis. The last part of this chapter described the substantive theory of the research, which is mainly used for data analysis level one, as shown in ChaptersFive and Six.

At the first level of data analysis, the identified indicators of learning mapped from key learning concepts (section 3.3.5) were used to locate processes of transformative learning from raw data. Chapter Seven uses the theoretical frameworks and the realist ontological perspective to infer and explain different learning events described in Chapters Five and Six. Critical realism provided the vocabulary to describe issues and conditions that potentially underlie empirical events of learning. The chapter that follows, Chapter Four, presents the research design and methodological processes. It outlines the linkage between the research concepts and contextual conditions described in Chapters One and Two, the theoretical frameworks discussed in this chapter and the proposed research methodological frameworks.

# CHAPTER FOUR: RESEARCH METHODOLOGY, METHODS AND PROCESSES

## 4.1 INTRODUCTION

This chapter gives an account of the research design. It outlines the major methodological concepts by linking the concepts to the objectives, contextual conditions and theoretical frameworks of the research, as introduced in section 1.7.1. This research employed a qualitative case study methodology described in section 4.1, 4.2 and 4.3. Section 4.4 includes the stage by stage progression of the research process from the contextual profile to the writing up of the thesis. The process was embedded in sociallyinteractive reflections in terms of self-understanding and understanding of others. This was particularly evident during field interventions when the object of study was investigated through people's lived experiences, which implicated their understanding and interpretation of issues. This chapter also describes the modes of analysis that were employed for construction of meaning from the data. The three methods of induction, abduction and retroduction described here are relevant for social interpretations, descriptions, extrapolations and inferences on social entities. The modes of inferences were all appropriate for qualitative research and thus were conveniently integrated. The modes were also supported by the underpinnings of critical realism philosophy, as described in section 3.2.1. The last part of the chapter describes the research concerns for ethical reflections and validity, as alluded to in section 1.7.1.

## 4.2 GENERAL METHODOLOGY

This research was conducted as a qualitative case study and was underpinned by critical realist ontology and epistemological orientations, as mentioned in the introduction. In the early stages, I did a thorough literature study of the methodology to explore the most recommended basics for a good case study in qualitative social science studies (Verschuren & Doorewaard, 1999; Sayer, 2000; Bassey, 2001; Merriam, 2002; Yin, 2004, 2009, 2011, 2012; Cohen, Manion & Morrison, 2007; Corcoran et al., 2007; Bernard & Ryan, 2010; Hammersley, 2012; Rodela et al., 2012). A case study is generally defined by these scholars as a research strategy that allows the researcher to conduct an in-depth investigation of a social phenomenon by contextualising the study within its real contexts. Case study research is also identified as intensive and should enable theoretical generalisations of the case situation to a different context. Most descriptions emphasise the depth of investigations, the situatedness in real context and the ability to develop general theoretical statements.

Yin (2009) recommended case study methodology for research questions that seek to address the 'how' and 'why' of phenomena. He proposes the use of 'how' and 'why' questions in case study research to enrich the *explanatory* powers of research arguments (ibid.). Yin (2009) further argued that 'how' and 'why' questions are convenient for providing inquiry interactions that can probe deeper insights into issues that are investigated. Such probing could surface the underlying reasons and meanings of social causes and effects to support causal explanations. This can help to create linkages to other phenomena, in an empirical or non-empirical world, associated with the social entity. Yin (2009) also encouraged an additional use of a strategic explorative 'what' question, which could stimulate explorative feedback. The 'what' question teases out further inquiry on the researched issues, e.g. what lessons are learnt? Or, as suggested by Sayer (2000), what produces change? Yin (2009) distinguished a case study from other research methods, but acknowledged the possibilities of overlaps:

> In general, case studies are the preferred method when (a) "how" or "why" questions are being posed, (b) the investigator has little control over events, and (c) the focus is on a contemporary phenomenon within a real-life context. This situation distinguishes case study research from other types of social science research. Nevertheless, the methods all overlap in many ways, not marked by sharp boundaries. (Yin, 2009, p. 2, original emphasis)

Qualitative research is described as powerful in examining human lives in a human world (Babbie, 2000; Merriam, 2002; Higgs & Cherry, 2009; Yin, 2011). Denzin and Lincoln (2008) considered qualitative research from its rooted history of power relations between researchers and the researched communities. They positioned qualitative research in contemporary social-cultural dynamics, which demand involvement of both the researcher and the researched in understanding the natural living situations. According to them, the basic features of qualitative research include the ability to re-articulate the living world as the researcher observes and interprets it, as expressed below:

> A situated activity that locates the observer in the world … It consists of interpretive material practices that make the world visible. These practices transform the world. This means that qualitative researchers study things in their natural settings, attempting to make sense of, or interpret, phenomenon in terms of meanings people bring to them. (Denzin & Lincoln, 2008, p. 4)

Thus, qualitative research is described by Denzin and Lincoln (2008) as a contextually-interpretive and socially-critical explanatory research design. Since qualitative research is socially-critical and demanding, they suggest that qualitative researchers work with

explanatory methods. Such methods include participatory inquiries, direct observations, narrative research, ethnography and ethics (ibid.). They also suggested the use of multiple methods of inquiry in order to deepen understanding of social phenomena (Denzin & Lincoln, 2008; Higgs & Cherry, 2009). Because of their explanatory powers, Higgs and Cherry (2009) recommended qualitative methods for researching complex challenges of climate change issues. They described qualitative methods as flexible enough to engage in a systemic analysis of issues that emerge from multiple causes and effects. Mezirow (2003) remarked on the plausible strength of qualitative research to deepen the understanding of the intrinsic states of human being, which supports transformative learning. He particularly commended the power of qualitative research in locating the rooted sociality in dialectical-discourses, inherent of human reflexivity. Mezirow (2003) identified the nexus of human sociality and dialectic-discourses within individuals as roots of transformative learning processes.

This research acknowledges that qualitative research inquiries are not confined to prescriptive procedures in approaching social phenomena. Maxwell (2012) recommended that the researcher lets the contextual conditions define the setting of research goals and questions, theoretical frameworks, inquiry methods and validity threats as shown in Figure 1.2. The integration of contextually-defined processes helps to deepen the explorations and explanations of entities beyond plausible causes, meaning or empirical interactions (Corcoran et al., 2007).

## 4.3 RESEARCH DESIGN

I primarily conceived the research idea from problemsthat already existed in the research site i.e. that there is little known about how projects such as REDD+ mediate transformative social learning at community level, and a desire to study learning interventions at the Pugu and Kazimzumbwi community using the approaches that respect the sociality of knowledge and experience as advised by Maxwell (2012) and Yin (2009; 2012). Chapter One and Chapter Two presented a roadmap illustrating engagement with the contextual situations of the Pugu and Kazimzumbwi community. Hence, Chapters One and Two outlined the research ideas in relation to the context from which the ideas and objectives of the research were defined. The chapters also demonstrated the links between the context-defined objectives and the objective-defined methodology of the research. In Chapter Three, the ontology of the object of study was redescribed relative to the proposed theoretical frameworks. Together, the

three chapters articulate the theoretical definition of the object of study with the contextual description of the object, and subsequently identified the appropriate research methodology.

Figure 4.1 summarises main features of the research design where research objectives reflect the demands for an open-ended, change-oriented transformative process and research questions, methodology and methods of inquiry seek to find emergent powers and properties from people's perspectives as people engage and respond to changes in forest practices.Both social realist theory and practice theory consolidate the frame of viewing temporal changes in forest approaches and identifying the emergent learning influences within forest-human interactions. The research design has regarded ethical cohesion and concern for validity as central to the entire research process, thus positioned at the middle of Figure 4.1.



*Figure 4. 1: Diagrammatic presentation of the research design process*

Corcoran et al. (2007) advised case study researchers to be mindful of four critical aspects when designing studies. First, to be explicit on the research purpose. Second, to know the roles, motives and personal interests of players in the research. This includes self-understanding, understanding of others and the power relations among individuals in the

research. The third aspect is to understand the contextual conditions of the research area and, the fourth, to allow for multi-dimensional perspectives in the research process.

Maxwell (2012) provided an in-depth description of a realist qualitative research design. He suggested that the research process should be viewed as an entity of a real living world. By the real living world he meant the research ideas that are construed through human thinking, reasoning, talking and doing things. Maxwell (2012) regarded the researcher's interest in the research ideas as important, since the ideas may paint pictures of the interactions in the research processes. The painted pictures may give clues about the object of study and thus the focus of the study. However, the ideas may not necessarily prescribe the design of the research. Maxwell (2012) further advised the researcher to allow actual research processes "on the ground" to guide the conduct of the research:

> Research designs, from this perspective, are real in at least two senses. First, as the actual conceptions of and plans for research held by the researcher, they are real parts of people's meaning, motives, and understandings … and have consequences for the conduct of the research. Second, the conduct of the research "on the ground" – the actions taken by the researcher, and the ways that these influence and are influenced by the specific context and relationships in which the study is conducted – is itself a real phenomenon that may differ substantially from what was planned, and even from what the researcher *"thinks"* is happening. (Maxwell, 2012, p. 71, original emphasis)

My research design draws on the works of Yin (2004, 2009, 2012), among others, to figure out the process on the ground. Yin's work developed hypothetical guidelines for successful planning of case study research. Yin (2004) recommended that researchers start by conceiving an important case topic. He regarded the process of identifying and defining a case topic as crucial, since this forms the main object of analysis. This process in case study methodology is described as setting boundaries of identity (ibid.). Chapter One described how my case topic was conceived and identified the boundaries of identity. The nature of my case topic is oriented towards a rural community and so I found Smith's (2008) work on researching native communities enriching. Smith (2008) explicitly insisted on critical reflections when designing methodologies for researching native communities in their rural contexts. Guided by Smith (2008), I regard the PKFR community as a learning community engaged in struggles to manage changes.According to Smith (2008) communities, such as the PKFR community, look at forests as their living environment and these communities have achieved some learning already (Smith, 2008; Hargreaves, 2011; Kemmis et al., 2014)

After conceiving the research idea, Yin (2004) advised researchers to identify issues in building a significant study on the selected case topic. He proposed two options for making a case study significant. Firstly, a researcher should ensure that a research contribution is valuable for the practice that is being researched. Secondly, researchers should choose appropriate theories in conducting studies. Yin (2012) suggested that the use of the right theories can make a case study "special" under any conditions of research (p. 7, emphasis original). He also suggested that one way of using theories is to work on a case subject that people consider common knowledge or an everyday matter already known (ibid.). Yin (2012) advised researchers to make use of methodological and theoretical tools that can change the 'I knew' attitude when the research process comes to illuminate common phenomena. Theories may illuminate common things to stimulate new sense of what was already known. The relevance of this notion to critical relist research bases on emergent reality that may exist beyond the known as explained in section 3.3.1.4. Danermark et al. (2002) also identified the purpose of theories in social science research in strengthening insights of common sense experiences through retroductive inferences: a well performed retroduction makes the old new (ibid.). Science research is essentially not aimed at finding new social events or activities, but rather at creating new insights into ordinary social situations. This is what Webster and Vare (2012) had in mind when they quoted Marcel Proust: "The real voyage of discovery consists not in seeking new landscape, but in having new eyes" (2012, p. 403)

The notion of 'making the known new' has helped to consolidate ideas about my research topic and formulate a case study. Apparently, issues of community learning at Pugu and Kazimzumbwi are subjected to the 'I knew' attitude among politicians, the conservation community and researchers in the country. Researching social learning at the PKFR community was the most appropriate choice I could make to illuminate the known assumptions. Thus the nature of learning at the PKFR community adheres to both of Yin's (2004) options for making a compelling case study. The community is an important risk community within the confinement of the forestry conservation arena in Tanzania, and globally, as indicated in section 1.3. Learning in the community is taken-for-granted, since many individual researchers, conservators, politicians and development agencies believe they know the forestry issues of the community. This attitude is sustained by a belief that community learning is taken care of by the provision of relevant conservation knowledge (Babikwa, 2004; González-Gaudiano & Meira-Cartea, 2010).

González-Gaudiano and Meira-Cartea (2010) argued that this belief is widely held by researchers and funding agencies and is commonly practised in climate change vulnerable societies. This attitude generalises issues of community learning into conservation knowledge, which is scientific by nature. The attitude is based on the impression that conservation science can study community issues adequately enough to uncover social problems and find solutions (ibid.). González-Gaudiano and Meira-Cartea (2010) observed many community projects and research topics in forest education carrying grand science-based titles, such as 'carbon stock', 'forest regeneration', and 'hydrological cycle'. The use of science-oriented names and processes has attracted donors' attention and promises that science can solve all problems faced by forest communities (ibid.). The assumption is that once rural people are trained and made to understand the science of trees, water sources, weather conditions and catchment values, they will change their behaviour and start caring for forests (ibid.). González-Gaudiano and Meira-Cartea's (2010) assertion resonated with the scenario I encountered during my research design as I interacted with conservators and the local research community. Many individuals felt the PKFR community is not a viable community for the study, because the conditions of forests at the site are well researched and the community is known for perpetuating degradation. However, this study aimed to understand community learning by surfacing more and new questions and creating new space for further investigations.

I had noticed that the Pugu and Kazimzumbwi site was among the widely researched and media-publicised areas in the country. Considering this, I speculated that the community was likely to be suffering from research fatigue. Writing from North America, Smith (2008) described native communities that are widely researched as 'tricky' and research in such contexts as taking place on 'tricky grounds'. Hence, she proposed the use of qualitative research methods for effective dialogical inquiry on such tricky grounds, as shown in the quote below:

> The ground is tricky because it is complicated and changeable, and it is tricky also because it can play tricks on research and researchers. Qualitative researchers generally learn to recognize and negotiate this ground in a number of ways, such as through their graduate studies, their acquisition of deep theoretical and methodological understandings, apprenticeships, experiences and practices, conversations with colleagues, peer reviews, their teaching of others. (Smith, 2008, p. 116)

Yin (2009) expressed a similar concern about complex social contexts, and outlined five essential skills that case study researchers should possess. He argued that researchers need to

be able to ask good questions, to listen, to be flexible, to understand the object of study, and to avoid bias (ibid.).

## 4.4 THE RESEARCH PROCESS

### 4.4.1 Contextual profile of the study site

After an extensive information and literature research, a contextual profile of the Pugu and Kazimzumbwi forest reserves (PKFR) site (marked as *study forest reserves* in figure 4.1) was developed. The forest in the north of the *study forest reserves* is Pugu and the one in the south is Kazimzumbwi. The contextual profile was developed following my personal interactions with some key informants from relevant institutions[6] in forest development in the country. The contextual profile aimed at informative checking of the context to develop a field understanding for describing the research site. Specifically, the contextual profile aimed (1) to make direct observations of the field and get a feeling of the study context, e.g. acquainting myself with the distances between different localities and other local arrangements; (2) to introduce the research ideas to the community, seek their voluntary involvement in the research, and test some inquiry methods; (3) to talk to village chairmen and ask them to coordinate the research at village level; and (4) to obtain basic contact information of the village people.

The contextual profile was organised during a three-day exploration of the site. The exploration took place between 2 and 7 March 2012. During this exploration, I was guided by realist qualitative research thinking in communicating with local informants about the site, as set out in my research design in section 4.3. The key informants at the site included the REDD project manager, village chairmen, and other individuals who possessed good knowledge of the area. As an educator who worked for WCST, I had personally worked with the community prior to this research. My previous encounters, however, were not research-based and were, therefore, not necessarily informed by practical and theoretical methodology on learning issues. Thus, the interactions experienced during the contextual profile felt unique and different from the previous encounters.

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[6] (1) Mr Joseph Kigula, PFM coordinator at the Ministry of Natural Resources and Tourism, (2) Mr Deo-Gratius Gamassa, Chief Coordinator of WCST, (3) Mr Yassin Mkwizu, Programme Officer - REDD at Norwegian Embassy, (4) Mr Emillius Nyanda, REDD project manager at PKFR site, and (5) a couple of chairmen at the PKFRs community.

***Figure 4.2: Map of the research site (the Pugu and Kazimzumbwi community) in Kisarawe and Ilala districts (adapted with modification from Kashaigili, 2013)***

### 4.4.1.1 Sampling of sub-sites

Field explorations during the contextual profiling enabled me to select a sample of three sub-units, effectively reflecting an embedded case study design. The identification of informants and sampling of sub-units were based on *convenience sampling* as proposed by Maxwell, (2012, p. 95, original emphasis). Maxwell (2012) recommended convenience sampling for realist qualitative research, since it allows the research to focus on the object that it seeks to understand (ibid.). The three sub-units were selected based on categorised commonalities and connections that create both similarities and contiguity among population groups (Maxwell, 2012). The grounding for commonalities and connections were primarily proposed by research informants, before the conditions naturally emerged from logical mapping of the research site. I later came to understand that different villages involved in Participatory Forest Management (PFM) and the REDD project had different experiences of the projects. The

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three sub-units, which are referred to as sub-sites in this study, reflected differences in social-cultural and historical interrelations with forest conservation as a result of experience and contiguity in location.

The first sub-site comprises village locations on the eastern side of the PKFR site, bordering Dar es Salaam (seeFigure 4.1). Sub-site I is thus considered peri-urban. Sub-site II comprises village locations between Kazimzumbwi Forest Reserve and Pugu Forest Reserve (seeFigure 4.1). The location was selected for its township characteristic for hosting district headquarters. Sub-site III comprises village locations on the southwest of the research site, on the western fringes of the Kazimzumbwi forest reserve. Sub-site III is a characteristic rural community residing in forest margins. With additional support from the REDD project manager at the PKFR community, the three sub-sites described above were earmarked as potential research sites.

### 4.4.1.2 Sampling of villages
Through convenience sampling, the research informants proposed two villages from each sub-site to participate in the research. This made a total sample of six villages of eight villages that were involved in the pilot of the REDD project.

The Nyeburu village (on map Figure 4.2) and Kimwani villages (not on the map) from sub-site I were tentatively earmarked for participation in the research. Preliminary negotiations with the chairmen of both Nyeburu and Kimwani, qualified Nyeburu village for voluntary participation as members of the village accepted the research. The negotiations with Kimwani village indicated a rejection for involuntary inclusion in the research, as is further explained insection 6.6.3. Thus, the research process for Kimwani village was modified to accommodate methods and analysis of learning from external observer's perspectives. The population of Nyeburu village was around 2500 households by 2012. The population figures for Kimwani were not obtained, but were estimated to be higher than Nyeburu, based on the local trends in population growth stipulated by Mdemu et al. (2012), which indicated high population growth in the Chanika ward.

Kisarawe village was earmarked to represent sub-site II. There were no other villages in the sub-site for convenience sampling because Kisarawe village is big enough to almost occupy the entire area of sub-site II. Kisarawe villageregistered 2200 households in 2011 and were yet to update village statistics in 2013. Due to expansiveness of Kisarawe village and problems of accessing the neighbourhoods, the village executive officer for Kisarawe advised

limiting the research activities to fairly accessible areas of Kisarawe village. The chairman of Kisarawe village allocated three sub-villages from Kisarawe to take part in the research as autonomous locations. The names of the sub-villages are Bomani, Umatumbini and Vigama, all with household population estimates of between 200 and 400.

Kisangaand Maguruwe villages were earmarked to participate in the research as representatives of sub-site III. Preliminary negotiations with both villages were successful and the village chairmen from both villages were willing and enthusiastic about coordinating the local research arrangements. The population of Kisanga was 478 households at the time of the contextual profile and the population of Maguruwe was 160 households. Kisanga village is also bordered by another forest reserve on the west side as shown in Figure 4.1. The name of the forest reserve that separates Kisanga village from the neighbouring district of Kibaha is Ruvu Kusini.See Table 4.1 for a summary of the villages and estimated numbers of households.

*Table 4.1: Sampled sub-sites and names of villages/sub-village participating in the research*

| Sub-site I (Northeast of Kazimzumbwi forest) | Sub-site II (North of Kazimzumbwi forest) | Sub-site III (Southwest of Kazimzumbwi forest) |
|---|---|---|
| Nyeburu Street (estimate: 2 500 households) | Vigama Sub-village (estimate: 250 households) | Kisanga Village (estimate: 478 households) |
| Kimwani Street (slightly more housholds than Nyeburu) | Umatumbini Sub-village (estimate: 300 households) | Maguruwe Village (estimate: 160 households) |
| --- | Bomani Sub-village (estimate: 320 households) | --- |

Locations constituted in sub-site II and III are referred to as villages, because they are located in Kisarawe administrative district council of the Pwani region. The locations in sub-site I are referred to as streets, because they are located in Ilala administrative Municipality of Dar es Salaam region. For ease of referencing, the two terms village and street are used interchangeably in this thesis when referring to locations in sub-site I.

*4.4.1.3 Other outcomes of the contextual profile*

There are a few other outcomes that resulted from the contextual profile. First, the existence of two innovation focuses in forest management emerged: (i) the Forest Management Enforcement Practices (FMEP), and (ii) the Forest Management Incentive Scheme Practices (FMISP). The contextual profile affirmed that both the PFM and the REDD project interventions in the PKFR community are heavily invested through the two innovative focuses, i.e. of promoting forest enforcements and of promoting forest incentives.

Second, from informal talks with members of the community, I re-framed some of the inquiry approaches in order to reduce ambiguity associated with some of the inquiry issues. For example, it was identified that people found it difficult to describe local challenges. Indications of challenges included personal problems, like financial and health; bio-physical problems, like weather, infrastructure and land tenure; and social problems, like local conflicts. At this stage, I re-oriented some of the inquiry methods to reflect contextual realities in looking for challenges. Processes such as this in which I re-framed and revised some of the inquiries and inquiry processes were ongoing throughout the research.

Third, the physical distance between village sites was clarified and the infrastructural conditions were identified. Due to unpaved roads, many locations were unlikely to be accessible during the rainy seasons, as the clay and sandy soils could make the roads impassable. In the light of this, the time frame for visiting the sub-sites was adjusted according to accessibility and proximity of the site locations. However, many participants were willing to partake in telephone conversations prior to the formal interviews and post-interviews.

Fourth, it was noted that some participants became disoriented during long interview conversations. The time for the interview sessions was adjusted accordingly. The interview sessions were reduced to one-hour sessions for each formal interview. However, the duration of the interviews was also determined by interview settings and capability of participants to stay focused. Extended interviews were equally challenging for the researcher, as the process of conducting interviews necessitated keeping the conversation focused on the research topic.

Fifth, during the contextual profile the researcher obtained contact information of the village chairmen and other individuals provided to support the research coordination in the sub-sites. The village chairmen had also selected research participants based on the duration that those individuals had lived in the locations and the individuals' experience in forest management.

Thus, all selected participants had been residents of the sites for more than ten years and had not pursed personal interests in participatory forest projects, e.g. holding shares or favours to avoid biasness. The ratio of males and females was also considered in the selection of participants.

*4.4.1.4 Visiting programme during contextual profile*
On the morning of 2 March 2012, I was accompanied by the REDD project manager, Mr Emillius Nyanda, and one research assistant, Ms Beatrice Luhanga, to travel from Dar es Salaam to Kisarawe district centre to meet the Kisarawe village chairman, Mr Abeli Mudo. In the afternoon, after a successful meeting, we left Kisarawe district centre to head to Kisanga village, a distance of 5 km south west of Kisarawe centre, to meet the chairman of Kisanga village, Mr Selemani Puga. The meeting with Mr Puga was also successful. Both chairmen (of Kisarawe and Kisanga) were enthusiastic about the research ideas and promised to commit their time and energy to coordinating local arrangements for the research.

On 4 March 2012, we travelled from Dar es Salaam to Maguruwe village to meet the chairman of Maguruwe village, Mr Ali Mkumba. The meeting with Mr Mkumba was positive. On our way back to Dar es Salaam from Maguruwe village we passed Kimwani Street intending to meet the chairman of Kimwani. This meeting unfortunately did not take place. We then continued to our next destination at Nyeburu Street where we met with the chairman, Mr Kasimu Uchuro. We had an informing and stimulating discussion about the research with both Mkumba and Uchuro, and both promised to cooperate.

On 7 March 2012, I went to meet with two village members to share research ideas and inquiry methods. Their names are identified by index codes, as shown in Table 4.10: Mr 3MSK of Maguruwe village and Mr 1NTZ of Nyeburu. The two informant villagers were ordinary villagers, who did not hold leadership positions in their villages. They were earmarked by their respective village chairmen as members who were knowledgeable on forest issues in the districts. The meetings were successfully held in their respective villages where informal testing of the strengths of the research inquiry approaches was also undertaken. The meeting at Nyeburu Street involved another villager whose name could not be obtained, since he was not appointed by the village chairman. The unknown villager joined the conversation as a passerby and, consequently, no one could stop him from listening and contributing. Table 4.2 summarises the visiting programme for the contextual profile. The process and the reasons for index coding the villagers' names is further described in section 4.5.2.1.

*Table 4.2: Programme for summarised visits to villages during contextual profile*

| Date | Village visited | Person met/missed |
|------|-----------------|-------------------|
| 2 March 2012 | Kisarawe Village<br>Kisanga Village | Chairman: Abeli Mudo<br>Chairman: Selemani Puga |
| 4 March 2012 | Maguruwe Village<br>Kimwani Street<br>Nyeburu Village | Chairman: Ali Mkumba<br>Chairman: Missed<br>Chairman: Kasimu Uchuro |
| 7March 2012 | Maguruwe Village<br>Nyeburu Street<br>Nyeburu Street | Villager:3MSK<br>Villager: 1NTZ<br>Villager: Unknown villager |

### 4.4.2   Generating strategies for data collection

As mentioned in section 1.7.2, this research employed multiple data collection methods and data collection was underpinned by critical realist ontology and epistemology (Babbie, 2000; Sayer, 2000; Archer, 1995; Alvesson, 2011; Maxwell, 2012). Alvesson (2011) preferred the term *data generation* to *data collection,* since the term *generation,* unlike *collection,* reflects the process of building field evidence (p. 69). Alvesson (2011) further argued that the metaphor of collection insinuates a wrong meaning of seeing data as things that can simply be collected. Both Alvesson (2011) and Ryan (2006) suggested that the process of producing field data is socially and contextually complex as it involves reflexive thinking about the self and about others in the interactions.

Evidently, the process of conducting qualitative inquiries is not simple, as also noted by Yin (2009). The use of qualitative inquiry methods in conducting a case study research is, consequently, adding complications to research. Ryan (2006) explained that "it [interpreting qualitative data] is rarely quick, and in fact is usually the most difficult, time-consuming and anxiety-provoking part of any research project" (p. 96). Yin (2009) also described the hard work required for case study research, "In actuality the demands of case study for your intellect, ego, and emotions are far greater than those of any other research method" (p. 68). My research was informed by these observations and those of other scholars in the field of social science, who advised researchers to minimise physical and emotional distance between themselves and the research participants. The closeness in sharing perspectives may

encourage common framing of ideas, arguments and conclusions on the research issues, making it easier to overcome knowledge gaps and validity threats (Lather, 1986a; 2014; Higgs & Cherry, 2009; Alvesson, 2011; Schatzki, 2012). The research process was divided into two parts of investigation, which are covered in 4.4.2.1 and 4.4.2.2.

### 4.4.2.1 The first investigation process

The first investigation process approached the study through empirical investigation of local people's experiences of changes of forest management approaches from 2000 to 2015. The empirical data of personal interactions was complemented and supported by analysis of documents and archival records from relevant sources. The first investigation process aimed to explore and explain historical trends in the changing forest management approaches and their implications for learning in the local community. The investigation further looked at forest practices as sites of human social interactions in which people engage in a variety of project activities. The experience of working in project activities and sharing thoughts and talks in work relations, could reorient human social development, including learning. Since both forest changes and human interactions in forest activities are time-dependent, the research annotated timelines on major changes in forest approaches. The data that was empirically generated and sorted in chronologies of time was further grounded in inductive, abductive and retroductive modes of analysis (see sections 5.6, 5.7.5.9 and 5.10) from which further relationships and liabilities for social change and learning were inferred.

### 4.4.2.2 The second investigation process

The second investigation process approached the research from the empirical and actualised experience of events and powers manifested through the REDD project mechanisms. This investigation obtained evidence from data that was generated from an interventionist reflexive workshop (see section 6.5) anddirect observations throughout the research period. Part of the data was obtained from focus group discussions conducted in the first investigation phase. The investigation aimed to identify the potential for community learning, change and transformation as well as opportunities and limitations from the practices of the REDD project at the PKFR community. The investigation also looked at agency building for change in practices and social transformation with reference to interrelational practices among project stakeholders. Thus, the investigation reflected on interrelational mechanisms in the REDD project that sustained the enabling or constraining conditions through which learning potentials were mediated. The mechanisms in the REDD project interactions were framed in an adaptive collaborative management framework for project participants to

validate the relational performance in the project. Through the validation of project performance in interrelational mechanisms, identified indicators of learning, discussed in section 3.3.5, were used to locate learning processes.

Data generation for both investigative processes was supported by evidence collected through field notes, photography, and audio-voice and audio-video recording of interactions in the field. This formed additional evidence that was used to broaden information coverage, enhance field facts and allow triangulation of results (ibid.).

### 4.4.3 Preparations for field data collection

#### 4.4.3.1 Seeking consent for the research

After the research context had been profiled, practical research arrangements were made. I obtained an official approval letter from Rhodes University to use in seeking consent for the research from the responsible authorities in Tanzania. I sought consent from regional authorities, municipality/districts, and ward levels. This research was undertaken through Rhodes University, South Africa, as part of my fulfilment for a doctorate degree in Environmental Education. The university, through the Environmental Learning Research Centre (ELRC) was also responsible for the supervision of my PhD studies, including field research. Gaining official consent from the relevant authorities is part of the university's ethical regulations for research projects (EHDC, 2014). Therefore, consent was requested from and given for the research by the two regional administrative authorities of Pwani for the Kisarawe district and Dar es Salaam for the Ilala municipality. Subsequent co-approval was later obtained from the respective districts and wards. Samples of consent letters for accessing village communities are attached in Appendix 1.

As part of adhering to research ethics in the context of local community's arrangements, I developed an informal rapport with the research community. Informal talks and meetings with village leaders, especially village chairmen and village executive officers, were extended after the contextual profile in order to share insights of the research process prior to official consent being obtained. Smith (2008) strongly encourages researchers to establish an informal rapport with research communities to encourage local people's voluntary consent. This is also aimed at obtaining relational consent from communities before official letters of approval are submitted, as suggested by Smith (2008). Smith (2008) described interactions in informal meetings as culturally, ethically and socially acceptable for advancing a research agenda when working with native communities. The assumption is that interactions with

local people may enhance positive images of the research agenda and can also build a sense of recognition for community members. The sense of being recognised and acknowledged for the role that one plays in contributing to the research can result in a sense of personal fulfilment for community members (ibid.). Engaging community members in preliminary interactions is also recommended by Maxwell (2012) as this offers potential for sharing research ideas which may influence the research design. Informal interactions were ongoing throughout the research process, which ensured reciprocity in communicative participation and helped to deepen my understanding of issues of the formal settings. Further details on ethical reflection are presented in section 4.6.2.

*4.4.3.2  Consultations with village chairmen for field meetings*
Before starting the actual fieldwork, village chairmen and some of the research assistants were involved in organising the field process. The research team conducted meetings with village chairmen to discuss fieldwork issues. The agenda of these meetings included: (1) sharing news of the forthcoming fieldwork (for preparations), (2) reporting feedback from the contextual profile outcomes, (3) getting to know the research participants, and (4) the development of a tentative programme for field interventions/inquiries.

The first round of field data collection was scheduled for March 2013, the second round for August-September 2013, and the third round was scheduled for May 2014, as shown in Table 4.3. The table shows the visiting dates for the various sub-sites as preparation of field inquiries and interactions with participants. The table also mentions the outputs of the visits. However, this summary of the preparatory visits does not show the countless number of telephone conversations with different community members in order to establish meeting dates. Some research issues were negotiated during these telephone conversations before the meetings were convened.

*Table 4.3: Dates for visiting villages in preparation of field inquiries in March and August - September 2013 as well as May 2014*

| Date | Name of sub-site/village | Results |
|---|---|---|
| 18 March  2013 | Sub-site I - Nyeburu street<br><br>Sub-site II - Kisarawe village | Chairman of Nyeburu was too busy, so another visit was planned.<br>Meeting with chairman of Kisarawe village was successful. |

| 19 March 2013 | Sub-site III - Kisanga and Maguruwe villages | Successful meetings and discussion with chairmen of both villages. |
|---|---|---|
| 20 March 2013 | Sub-site I - revisit Nyeburu street<br><br>Sub-site I- Kimwani street | Successful meeting and discussion with chairman of Nyeburu.<br>Meeting the chairman of Kimwani did not take place, see section 6.6.3. |
| 20 August 2013 | Sub-site II - Kisarawe village | Successful meeting and discussion with chairman in the presence of village executive officer. |
| 24August 2013 | Sub-site III - Kisanga and Maguruwe villages | Successful meeting and discussion with chairmen of both villages in the presence of one member of Kisanga village council. |
| 25 August 2013 | Sub-site I - Nyeburu street<br>Sub-site I - revisit Kimwani | Successful meeting and discussion with the village chairman of Nyeburu.<br>Meeting with a team of people, but unsuccessful in discussing the research agenda, see section 6.6.3. |
| 16 May 2014 | Sub-site I – Nyeburu street | Successful meeting with the village executive officer in Nyeburu. |
| 18 May 2014 | Sub-site I - Nyeburu street<br>Sub-site I - Kimwani street | Successful meeting and discussion with the Chairman of Nyeburu.<br>Meeting with executive officer, but unsuccessful in negotiating the research. |
| 19 May 2014 | Sub-site III – Kisanga village<br>Sub-site III - Targeted Maguruwe village | Successful meeting and discussion with chairman at Kisanga village.<br>Did not physically meet Maguruwe chairman, since the chairman of Kisanga offered to communicate to Maguruwe chairman, saving me time and energy. |

### 4.4.3.3 Field programme for data collection

The time span between the first round of data collection and the second round, from March 2013 to August 2013, was collaboratively deliberated by village chairmen during the early projections of field planning. Repeated inquiries were planned to check the progression in learning practices (if any). Repeated inquiries were also used to affirm the information that was previously collected, as suggested by Lather (1986a). Planning the first and second rounds of interviews in the first three quarters of the year was favoured by village chairmen, because it allowed the fieldwork to take place before the onset of seasonal rains during the fourth quarter of the year. The October/November rain season is significant for farming preparations in most rural areas in the country and chairmen advised the research to spare that season for farming activities. They warned that there would be little response for participation during the farming season. The effects of such rains on roads and other infrastructure are also

unpredictable. The rains could flood the lowland areas of Maguruwe village and could spoil roads and increase livelihood uncertainties. The timing of the interviews in March and August 2013 was also endorsed by the REDD project team at the site.

The five months in between the first and second round of interviews were used to update and validate the data with archival records and analysis of documents. I also used the five months to undertake follow-up interviews with participants by telephone. I was further able to use this period for reflections on the relevance of the data generated in March 2013. Follow-up inquiries were extended to the REDD project manager, who was at that time busy with annual project evaluations. Furthermore, informal contacts were established with individuals who managed the PFM project activities at Pugu and Kazimzumbwi to clarify a few items. For instance, the PFM project manager helped to clarify the meaning of some of the popular metaphors that emerged during PFM. A few informal visits were also paid to village chairmen to nurture mutual relations and collaborations.

In these five months, it transpired that REDD project activities were being stopped in Pugu and Kazimzumbwi for management reasons, as will be explained in section 6.5.3.2. This information was confirmed by the REDD project manager following completion of annual project reviews. The termination of the project posed significant contextual interruptions to the community, as most local project's initiatives were integrated in community activities. The event also impacted the schedule and setting for the second round of data collection since I had expected to meet the new project management team by the next round of field interactions. However, at the end of this research in 2014, the community had not yet heard anything about a new project manager.

### 4.4.4    Face to face interviews with individual participants

I was familiar with the local socio-cultural styles of communication in the ethnic groups of Pwani region. Thus, I was confident about my ability to interact and form relationships with local people, especially when building on existing interpersonal relations. Nevertheless, field management of person-to-person dialogues was often complex, since the responses of individual participants may remain indeterminate (Kvale, 1996; Alvesson, 2011; Yin, 2012). For instance, people's responses to interactive stimuli can be influenced by personal affections, like mood, expectations, or the place where the interview is conducted. Another possible disorienting factor in widely-researched communities, like the community of PKFR, is people's fatigue with research inquiries from outsider researchers (Smith, 2008).

Semi structured interviews were designed to stimulate people's memories of their lived experiences in PFM practices. Four interview questions that guided interview interactions were framed to explore: (i) Backgrounds of individual participants and their historical engagement in PFM activities (ii) individual's perspectives of the PFM initiatives before the coming of REDD project. What events occurred, how they occurred and why (iii) individual/community's challenges in engaging with PFM events and adapting to new forest practices, causes and effects of challenges, as well as opinions for managing them (iv) How individuals/community felt about the REDD project. People's roles and strategies, expectations and their opinions on the project activities that were going on.

*4.4.4.1 Schedule for interviews sessions*

Semi-structured interviews were conducted in two rounds in 2013, as outlined in Table 4.4. Research participants from all sub-sites were involved in the first round interviews of March 2013. The second round of interviews did not include participants from sub-site I due to difficult communication with village chairmen as explained in section 6.6.2.

*Table 4.4: Dates and venues of interviews*

| Date | Place | Name/Index code |
|------|-------|-----------------|
| 22 March 2013 | Vigama (Kisarawe village) Bomani (Kisarawe village) | 2K1AM 2K1AD |
| 24 March 2013 | Kisanga village | 3K1AM |
| 25 March 2013 | Maguruwe village | 3M1ML |
| 27 March 2013 | Nyeburu village | 1N1RF 1N1HO |
| 27 August 2013 | Umatumbini (Kisarawe village) | 2K2PB |
| 28 August 2013 | Maguruwe village | 3M2SD |
| 4September 2013 | Kisanga village | 3K2SM |
| 6 September 2013 | Kisarawe village | 2K2MG |

## 4.4.5      Focus group discussions

Focus group discussions were conducted at the end of 2013 in sub-site II and sub-site III. The focus group discussions were joined by all interview participants. Additional members were sourced from local leaders and potential people from respective sub-sites, as advised by village chairmen. Five research participants, three men and two women, participated in the

focus group discussion at sub-site II. Seven participants, five men and two women, participated in focus group discussion at sub-site III, as depicted in Table 4.5.

The focus group discussion at sub-site II brought together interview participants from three sub-villages of Kisarawe village, namely Bomani, Umatumbini and Vigama, as explained in 4.4.1.2. The group discussion was conducted under a small shady tree, at the Kisarawe primary school on 13 September 2013, from 3.00 to 4.40 p.m. The place for convening a group discussion was proposed by the Kisarawe ward executive officer. The executive officer blessed the meeting, but did not attend the discussions.

The focus group discussion at sub-site III brought together research participants from Kisanga village and Maguruwe village, and was held at the Maguruwe village office on 30 September 2013. The decision to convene in Maguruwe village was proposed by the village chairman of Kisanga and seconded by the chairman of Maguruwe village. The discussion was held from 10:30 am to around 12:00 am, in the presence of the acting village executive officer of Maguruwe, although he did not partake in the discussion.

*Table 4.5: Focus group discussions and index codes of people who attended*

| Date | Place | Name/Index code |
|---|---|---|
| 13th September 2013 | Sub-site II at Kisarawe Primary school | 2K1AM, 2K1AD, 2K2PB, 2K2MG and 2KAM. |
| 30th September 2013 | Sub-site III at Maguruwe village office | 3K1AM, 3M2SD, 3M1ML, 3K2SM, 3MSK, 3MAM, 3KSP. |

Focus group discussions were planned to discuss issues that emerged from interviews and the analysis of documents, archival records and direct observations. A guiding protocol for the focus group discussions was framed to stimulate sharing of ideas and experience. The protocol also encouraged collaborative arguments and deliberations on basic forest challenges in the community. The guiding protocol for group discussions is attached in Appendix 2. The protocol was framed to reflect, first, the general perspective in participatory forest management, and, second, specific issues of REDD project mechanisms. Specifically, the first part aimed to stimulate reflections on (i) general experience on changes in forest practices over the $\pm$ 15 year time frame, (ii) how the changes in forest practice occurred, (iv) why they occurred, (v) lessons learnt from the changes, and (vi) positive or negative

implications for the community. The second part of the protocol stimulated reflections on (i) locally ongoing issues of the REDD project (if there were any), (ii) negative and/or positive implications of the REDD project for the community, and (iii) comments that individuals have about the REDD project.

The procedure in conducting focus group discussions was not predetermined, but was formulated by the researcher in collaboration with participants in the relevant contexts of the group discussion as follows:

> Introducing research assistants to research participants and introducing the aim of convening for discussion.

> Seeking participants' consent for video recording during the discussions (which was obtainedfrom both groups).

> Reflecting on major events raised in interviews in March and August/September of 2013 (to stimulate participants' memories).

> Going through the guide items in the protocol to understand the agenda, interpret the themes and approve items of discussion.

Members in both group discussions debated the guide items presented in the protocol before prioritising the issues and agreeing to approve the items as agenda items. They also requested to hold back the video shootingtill they felt ready to be recorded. The focus group at sub-site II was more sensitive to the video recording than the one at sub-site III. The sequences of picking items for discussion in both groups was not ordered as per the order in the protocol, as groups tended to start discussing items of most concern to them.

### 4.4.6   Analysis of documents and archival records

*4.4.6.1 Tracing people's voices in documents and archival materials*
Historical documents were collected from various sources of information. Electronic materials were collected, including media such as television, telephone, text (sms) messages, and web-news.  Printed materials were also collected, including project reports, newspapers, training manuals, and campaign materials. The collection of archival records was extended to artefacts and other normalised features of the community's experience. The criteria I used for collecting these materials were based on whether the items revealed something about local people's voices in participatory management of forests at Pugu and Kazimzumbwi. Examples

of artefacts that talked about people's voices were the mapped forests and village boundaries, the presence of village forest reserves, processing of course certificates, existing community banks, some artworks and symbols. Some unobservable and intangible features, like existing orders, social positions and human to human relations, were also considered as artefacts (Yin, 2012).

All documents and archival records about the Pugu and Kazimzumbwi forest reserves or about the community qualified for collection, but not all could be qualified as reflections of people's voices. The collected materials were later examined for relevant insights into local people's voices. In order to extract evidence from people's experiences in the documents the analysis focused on exploring people's representations. Representations included direct quotes from local individuals, or explanations that reported on what a local person or community had said.

I followed Yin's (2012) advice and was conscious of conventional project reports and research findings, which presented community issues from the perspectives of their political objectives. I was also cautioned by Smith (2008) that most conservation documents are not per se interested in promoting local understanding of issues, unheard voices, and local experience. Daniels (2008) further discussed the influence of social-cultural mediation in authorship of written documentation. He broadly examined the relevance of written materials for audience understanding and learning (ibid.). Daniels (2008) observed that most of the documents that he examined were constructed to serve either personal or institutional interests and were not intended to promote audience understanding of issues. Daniels (2008) cautions that this may be equally true for all materials that are communicative through language and symbols, including the writing of this thesis, which may reflect my personal judgment and conclusions. Table 4.6, 4.7 and 4.8 shows how I worked with this data, and presents data extracts from the analysis of documents and archival records to show evidence of this analysis, as divided into three categories: (i) conservation documents and records, (ii) artefacts and physical features, and (iii) media news.

*Table 4.6: Data presentation from conservation documents, research and project reports*

| 1.1 | Category I: Records from conservation documents, research and project reports | |
|---|---|---|
| | **Details in the materials** | **Specified details for evidence of learning** |
| | *Several work reports on a JFM Project of 1995-1998, funded by the Swedish Society for Nature Conservation. This represented a collaboration of Forest and Beekeeping Division, Ministry of Natural Resources & Tourism, two district councils, Kisarawe in Pwani region and Ilala in Dar es Salaam region, village councils, and communities around PKFR. Project executed by Wildlife Conservation Society of Tanzania.* | |
| 1. | Most of the project's activities engaged local people. People's engagement was also evidenced from interviews and focus group discussions. Mobilised community meetings, campaigns and formation of environmental committees. | Village elections and nomination of members to committees. Community involved in preliminary planning for joint forest management undertakings. Contribution of local capabilities, e.g. labour and materials. |
| 2. | School activities included teachers' networks and formation of Wildlife clubs in the Pugu and Kazimzumbwi community. | Chanika and Buyuni primary schools in Ilala district became the first Wildlife club schools in Tanzania. Introduced forest related activities in schools. |
| 3. | Project activity for construction of nature trails at Pugu and Kazimzumbwi forests in 1997 and organising inauguration ceremony. Aimed at enhancing access to the forest and building structures for envisaging eco-tourism promotion activities. Both internal and external tourism, including educational and recreational visits. | Engaged local people in construction of nature trails, fabrication of signboards, and in regular maintenance of the nature trails. By the end of 1997, nine schools from both Pwani and Dar es Salaam region had toured the Nature trails (Chanika, Buyuni, Chanzige, Sanze, Bunge, Kisarawe, Minaki, Jitegemee and Pugu). |
| 4. | Involving community in local inventories of resources, including species of both fauna and flora and their social-cultural values, water sources and traditional sites of historical significance. Community was also involved in drafting a tour guide manual and attended extra training on tour guiding. | Mapping out of resources around village areas increased peoples understanding and care for the local resources. To date, Minaki dam and the ritual sites are cherished by the community, although no tourism advanced. Drafting of tour guide manual was educational for school teachers that were involved and who could pass on feedback to the children. |

| 5. | Involving the community in the inventory and documentation of medicinal plants of Pugu and Kazimzumbwi forests for examination and approval of the national medicinal authorities. The project printed a guide book for medicinal plants of PKFR. | School teachers and local community involved in identification of traditional medicinal plants and providing local against scientific identification. Local people to date remember the details of identification and the approved medicines. |
|---|---|---|
| 6. | Boundary mapping of forest reserves and village lands to identify resources for development of forest management plans with involvement of the community, both men and women. | "Mkuza" metaphor was popularly associated with boundary mapping. People's memories of the boundary mapping activity and the meaning of the process were still clear during the research. |
| | *Several work reports and evaluation reports of "Misitu Yetu Project" (2000 -2005). Funded by NORAD/ CARE NORGE/ CARE TANZANIA. An Integrated Conservation and Development Project, jointly implemented by CARE Tanzania, in collaboration with the Wildlife Conservation Society of Tanzania and the Tanzania Forest Conservation Group.* | |
| 7. | The project facilitated and promoted the establishment of Income Generation Activities (IGA). Project established Community Forest Conservation Networks around forest adjacent communities. Empowered people's common voices, advocacy, capacity building, and forest monitoring. | Village Community Banks existing to date in Maguruwe, Vigama, Kisanga and Kisarawe villages. WAHIPUKA Network established for networking in the Pugu and Kazimzumbwi community. Memories of the network exist to date but the network is not active. |
| 8. | In one of the meeting interventions, youth from Buyuni requested to cultivate along river valleys in Kazimzumbwi Forest Reserve, but elders objected and explained about past experiences and lessons learnt from wetlands values. | Intergenerational knowledge divergence and intergenerational transfer of knowledge. This brings attention to the overarching need for villagers to access the forest land for cultivation. |
| 9. | Complaints from Pugu and Kazimzumbwi villagers about land shortages, claiming that the best of land falls under forests territory, while farmlands are dry and unhealthy. Villagers wanted to see the outcomes of boundaries mapping enhances conservation that restores forest services such as water, eco-tourism practices and forest research.  Levying could ensure income for the local community. | Noted strategies by local voices suggesting raising their economic statuses through forest levies, since agriculture is viewed as unproductive. Levying from researchers working at PKFR site and people coming for forest walks was exercised in Kisanga village until recently. This was also confirmed in interviews at Kisanga. |
| 10. | Some project reports indicated local people's complaints about forest governance from central government. Complaints that the PFM project was threatened by few forest staff that were corrupt and not devoted to their work. They advised the government undertake action against corrupt employees if PFM was to achieve the intended objectives. | Villagers of Kisanga in 2003 expressed their frustrations in witnessing corruption among government forest officials, including forest guards. Villagers questioned the rationale of salaries paid to such employees who proved not efficient in forest guarding. |

| | National programme for identification and protection of Important Bird Areas (IBAs). Coordinated by Wildlife Conservation Society of Tanzania as an International Birdlife Partner in Tanzania. | |
|---|---|---|
| 11. | The programme conducted bird surveys at PKFR (among other areas).<br>Production of the Tanzania Bird Atlas. Copies of the book found in various institutions in the country, e.g. universities and conservation departments. | Community memories of the surveys and participation in bird identification.<br>Memories of threatened and endemic flora and fauna existed in Kisanga village. Memories of birdwatching excursions in schools and in the local community were also prevalent. |

*Table 4.7: Data presentation from records of artefacts, physical features and historical objects*

| | Category II: Records from artefacts, physical features and historical objects | |
|---|---|---|
| | **Details of the material** | **Specific details for evidence of learning** |
| | *Archival records for village forest Management Areas, including survey maps showing villages that bordered Kazimzumbwi forest reserve, details on village sizes, location of survey beacons, and beacon identification numbers.* | |
| 12. | A survey map of Kazimzumbwi forest and surrounding villages was obtained at Kisanga village as an archive record. The map located village boundaries and noted respective sizes with reference to forest location. | Villagers were proud of the map and used it to identify their village boundaries.<br>The map was used in resolving boundary disputes between Kisanga village and the neighbouring village of Sungwi. |
| 13. | Paper posters in village offices. Forestry posters were prominently displayed. | Posters displaying forestry messages were used as table covers in Kisanga village office and were extensively used to cover walls in Kisarawe village office. |
| 14. | Features of vandalised forest and sand mines inside the forest reserve land in Kazimzumbwi forest around Chanika area and features of vandalised signposts also in Chanika area. | Community interprets forest encroachments and vandalisation as a weakness of government authorities' enforcement of forest laws. |
| 15. | Evidence of land clearance for farming and marking of land properties in Kazimzumbwi forest along Chanika area. | Community witnesses land sale practices inside the forest reserve. People from outside the community buy plots of land from some community members. |
| 16. | Observed features and oral reports of fire in the Kazimzumbwi forest reserve, along the Chanika and Nzasa areas. Newspaper articles and information from villagers. | Claims of human induced fires (evidence of smoke, after fire conditions). Increased fire incidences in the areas. |

*Table 4.8: Data presentation from historical and archival records of both soft and hard media*

| | Category III: Historical and archival records from hard and soft media | |
|---|---|---|
| | **Details of the material** | **Specific details for evidence of learning** |
| | *Information from contemporary newspapers, online news, television news, and other informal publications for training of community groups.* | |
| 17. | Group conflicts and violence among community groups, lead to uprooting of planted trees and seedlings. | Newspapers, social media, uprooted plants, individual witness, police arrests, and court cases. |
| 18. | Newspaper and website link – Beacon conflicts between Kisanga village and the neighbour village of Sungwi. | A case well debated and evidenced through survey maps and satellite maps of the forests and villages. Confirmed by the village chairman of Kisanga. |
| 19. | A Kiswahili handout to guide formulation of community forest by-laws that was used as a training tool in 1999. | Produced by CARE – Tanzania and is evidenced by people's memories. |
| 20. | A Kiswahili handout to guide establishment of Village Community Conservation Banks. | Produced by CARE – Tanzania and evidenced in people's memories as well as in the existence of the banks. |
| 21. | A Kiswahili brochure to guide eco-tourism in the Pugu and Kazimzumbwi forest reserves in 1997. Produced by Wildlife Conservation Society of Tanzania. | Eco-tourism plans exist in people's memory. The touristic sites are still evident are proposed for promotion of eco-tourism. |
| 22. | A Kiswahili handout to guide bee-keeping training in the community. Prepared by D. Liana and edited by A. H. Mndeme. | The trained people claimed to be knowledgeable, though do not practice bee-keeping. |
| 23. | The network of 'Friends of Pugu and Kazimzumbwi' was started at by REDD project through an SMS loop. | Inspiring messages through SMSs, encouraging people to join "Friends of Pugu and Kazimzumbwi" conservation campaigns. |

## 4.4.7 Field notes, photographs, audio-voice and audio-video recording

Field notes, photographs and voice recordings were taken during interviews and focus group discussions. Video recording was in particular undertaken in focus group discussions, after consent was obtained from the participants for ensuring confidentiality of participants.

Participants gave their consent for photography. Most photographs were taken of current and historical practices, e.g. of events during a workshop and of past activities in the field. During a reflexive workshop, evidence of written materials of group deliberations were also collected as data. Yin (2012) recommended an extensive list of data sources in case study research to expand the data corpus, as explained below.

> However, you should be aware that a complete list of sources can be quite extensive – including films, photographs, and videotapes; projective techniques and psychological testing; proxemics; kinesics; "street" ethnography; and histories… (p. 101)

The following sections describe how the different types of data sources, i.e. field notes, photographs, and recordings that were obtained and how they contributed to the analysis.

### 4.4.7.1 Field notes

Field notes were taken to record the details and reflections of interview conversations, group discussions, the reflexive workshop, and of observations, as shown in Table 4.8. The notes were regularly updated whenever new insights emerged. Note taking took place in all interactions during interviews, discussions and observations, whenever a pen and paper could be used. Most of the notes were taken in a form of shorthand writing, symbols and sketch drawings, as shown by a page of my field notebook in Figure 4.2. The drawing represents the sitting arrangements in a focus group discussion in sub-site III (the names of the participants have been covered for confidentiality). Such notes were later reproduced to produce fair copies to detail every field process, as well as other side events that were not covered in field notebooks. Side events included nuances like people's moods or motives, informal talks where field writing proved not possible and also included circumstances in interview places, homes or in streets I passed. Table 4.9 presents a list of field visits and the field notes that were obtained from the visits.

*Figure 4.3: A page from my field notebook, showing the sitting arrangement of participants in the focus group discussion in sub-site III in September 2013*

*Table 4.9: List of field visits and field notes that were collected*

| Date | Places visited and notes collected |
|---|---|
| 1st week of March 2012 | *Visited most of the villages surrounding the Pugu and Kazimzumbwi forest reserves, including Kisarawe, Kisanga, Maguruwe, Nyeburu, Pugu Kajiungeni, and Kimwani.*<br><br>Collected general information of Kisarawe district and developed profiles of the villages in terms of location, accessibility, physical environment and village experience in participatory forest management projects. Worked with the REDD project manager. Established contacts with some of the village chairmen and individuals. Detailed information of Kisarawe, Kisanga, Nyeburu and Maguruwe villages was obtained regarding the state of environment, the people, livelihoods and administration. Information on local politics was also extracted from talks with respective village chairmen. |
| 3rd week of August 2012 | *Visited some of the village chairmen with the REDD project manager.*<br>The REDD project manager provided information about the project and about the villages. Detailed notes about participating villages were obtained through physical observations and interactions with people. Information on social lives was further obtained by sharing lunch at the Kisarawe centre where fresh goat meat was grilled on charcoal stoves. Some photographs were taken at the office of the Kisanga village chairman. Other photos were taken from the roads, school gardens, and village sites. |
| 3rd week of March 2013 | *A number of visits to villages and talks with village chairmen.*<br><br>Visits to discuss, plan and set dates for the first round of data collection. The visits are detailed in Table 4.3. Visits were followed by field interactions for research inquiry processes in the fourth week of March 2013, as detailed in section 4.4.4.1 and Table 4.4.<br><br>Information of social-economic activities obtained from the market centre at Kisarawe, where most farmers and middlemen sell crops. Stories were obtained about how and what they cultivate. Information was collected about seasonal crops like fruits and vegetables. |
| 4th week of August 2013 | *A number of visits to villages and interactions with village members and chairmen.*<br>Planning and setting of dates for the second round of data collection. The visits are detailed in Table 4.3. This was followed by a second round of field inquiries in the last week of August and first week of September 2013, as detailed in 4.4.4.1 and Table 4.4. |
| 1st week of September | *Two invitations to visit Kisanga village.*<br>An informal invitation to explore Kisanga village's borders with the Ruvu Kusini forest reserve was received. Access was gained to see Kisanga village land and the village border with the Kibaha district. I was also invited to attend one of the village council meetings regarding the planning (fund raising) of the construction of a new village office. The invitation followed a previous one from 31 July 2013, when my family and I were officially registered as villagers of Kisanga village. Thus, from July 2013, I was researching the community to which I officially belonged. |
| 2nd and 3rd week of May 2014 | *Visited Nyeburu and Kimwani Streets and later Kisarawe and Kisanga villages.*<br><br>A number of visits to sub-site I took place to meet the village chairmen, executive officers and individual members in the villages. I visited some parts of Nyeburu village by motorbike. I talked to villagers and observed the kind if life they lived. People were friendly and kind to me. In most places, people did not want to be photographed or have their voices recorded. These visits took place mostly for preparations of a reflexive workshop that took place in the same month of May as explained in section 4.4.8. |

*4.4.7.2 Voice and audio video recording and photography*

Voice recordings were made using an Olympus digital voice recorder and a Samsung smart phone, after consent was obtained from the participants. Seven of ten interviews in the first investigation process were fully recorded, four from the first round of interviews and three from the second round. Some short voice clips were recorded in follow-up interviews, especially during telephone conversations. The voice records were labeled by index codes and stored on a laptop. The recordings were then transcribed into printed scripts by a qualified transcriber who was fluent in Kiswahili, since the interviews were conducted in Kiswahili. After the transcriptions were completed I checked all the scripts by replaying the recordings several times while following the written scripts. Replaying the recordings also allowed me to check and inform my field notes. Some of the information from the interviews helped to update my field notes and vice versa. Video recordings were only taken in the two focus group discussions. The focus group discussion at sub-site II was recorded with a Sony DSC-H9 movie camera, while the focus group discussion at sub-site III was recorded with an iPad 4. The video clips were also stored on the laptop. All voice recordings and video clips were also stored on a DVD as a form of backup.

The data collection method that proved difficult to negotiate in the community of Pugu and Kazimzumbwi was photographing. People in the community were sensitive to photographs, which may indicate research fatigue. I realised that photography could invoke unnecessary attention, since the micro-and macro-political relations of the forests around the Pugu and Kazimzumbwi site were already tense, and thus I decided not to take photographs. Furthermore, the forest law of Tanzania dictates it is illegal to enter forest reserves without permission from responsible authorities and this made it difficult to photograph features inside the reserves. Thus, it proved contextually inappropriate to use photographs to expand the data, as advised by Bernard and Ryan (2010). Nevertheless, a few photographs were taken whenever conditions allowed. Some photographs taken in the Kisanga village office reflect administrative styles and structures, as portrayed in Figure 4.3 in which population statistics are displayed. The notice board also displayed names of different committees in the village and the people who belonged to the committees. The photo in Figure 4.4 was taken on the road side and shows kaolin deposits. The kaolin deposits support the explanation given in section 1.3.2 on the potential for commercial exploitation of kaolin deposits in the Pugu hills.

*Figure 4.4: A village notice board in Kisanga, showing village statistics and part of village committees*

Other photographs that were taken during events in the field inquiries, e.g. the focus group discussion and reflexive workshop, were used to accurately describe different aspects of the events, as is further detailed in section 5.6.2, Box 5.2 and section 6.2.2. Details in the photographs were used as evidence in multimodel identification of social-cultural practices in terms of people's bodily presentations, appearance, and dressing codes, as further discussed in sections 6.2.1 and 6.2.2.



*Figure 4.5: A photograph of kaolin deposits seen from road towards Kazimzumbwi and Kisanga village*

### 4.4.8   Interventionist reflexive workshop

A reflexive workshop was designed and hosted in the last year of the research. The workshop involved all research participants that took part in the interviews, focus group discussions and other roles that supported the first investigation process. The aim of the workshop was twofold: (1) to collectively reflect on mirror data (as explained in section 4.4.8.2) generated from the first investigation process, and (2) to reflexively validate the REDD project mechanisms against a framework of interrelational mechanisms for adaptive collaborative management. The workshop addressed the third and fourth specific objectives of the research, which together addressed four topics: (1) identifying the operationalised mechanisms of REDD; (2) how the mechanisms influence learning; (3) what enabling and/or constraining conditions exist for learning; and (4) human agency, changes and transformations relevant to adaptive collaborative management. Rodela et al. (2012) considered the use of reflexive workshops as critical in natural resource management. They believed that workshops canfacilitate functional power relations among ecological partners. Rodela et al. (2012) recommendedthat stakeholders in natural resource management engage in democratic deliberations in order to attain common understanding, social equities and an ecosystem balance.

Engeström and his colleagues developed a popular workshop methodology in 2007 for addressing challenges of organisational learning (Daniels, 2008). Engeström introduced *change laboratory workshops* in activity theory to create dialogues across activity group (Engeström, 2009, p. 53). Change laboratory workshops serve as an interventionist platform for raising multi-voiced decisions and deliberations through interactions between activity groups. Through this, common challenges can be addressed in interactive learning processes (Engeström, 2001; Daniels, 2008). This research did not fully adopt Engeström's activity theory, but it was informed by its workshop approach to encourage collaborative reflections.

*4.4.8.1 Workshop planning*
A reflexive workshop was held on 29 May 2014 in Kisarawe village, where the district centre is located. To prepare for the workshop, preliminary meetings with village chairmen were organised in the third week of May 2014. The village chairmen were responsible for workshop preparations, which included finding the workshop venue, inviting workshop members from their villages, arranging workshop refreshments, and chairing of group work. The reflexive workshop was attended by research participants who were previously

interviewed and/or had attended the focus group discussions in the first round of research inquiries. Other members of the workshop included research informants, the village chairmen and members that were co-opted by village chairmen. A total of eighteen participants, five from sub-site I, six from sub-site II and seven from sub-site III attended the workshop, as shown in Table 4.10 below. The table presents the participant's index codes, the villages they came from, and their previous role in the research (interviewee, attendee of focus group discussions (FG discussion), research informant, or co-opted member).

*Table 4.10: Table showing list of workshop participants, their villages and participation in the research*

| No | Index code/name | Village/sub-village name | Interviewed/FG discussion or co-opted |
|----|----|----|----|
| 1 | 2K1AM | Bomani sub-village of Kisarawe | Interviewed + FG discussion |
| 2 | 2K1AD | Vigama sub-village Kisarawe | Interviewed + FG discussion |
| 3 | 3K1AM | Kisanga village | Interviewed |
| 4 | 3M1ML | Maguruwe village | Interviewed + FG discussion |
| 5 | 1N1TZ | Nyeburu village | Interviewed |
| 6 | 1N1HO | Nyeburu village | Interviewed |
| 7 | 2K2PB | Umatumbini sub-village of Kisarawe | Interviewed + FG discussion |
| 8 | 3MSK | Maguruwe village  (Informant) | FG discussion |
| 9 | 2KAM | Kisarawe village (Chairman) | FG discussion |
| 10 | 3KSP | Kisanga village (Chairman) | FG discussion |
| 11 | 3MAM | Maguruwe village (Chairman) | FG discussion |
| 12 | 1NMP | Nyeburu village | Co-opted by chairman |
| 13 | 1NHN | Nyeburu village (informant) | Co-opted by researcher |
| 14 | 1NWP | Nyeburu village | Co-opted by chairman |
| 15 | 1NSA | Nyeburu village | Co-opted by chairman |
| 16 | 2KAM | Kisarawe village | Co-opted by chairman |
| 17 | 3KMK | Kisanga village | Co-opted by chairman |
| 18 | 1NRF | Nyeburu | Co-opted by chairman |

NB. Participant 1NTZ noted in section 4.4.1.5 and Table 4.2 as an informant from Nyeburu village was not formally interviewed and passed away during the research process, so the name could not appear in the list of workshop attendees.

*4.4.8.2 The first session of the workshop*

The first session of the workshop took place from 9.00 to 11.00 a.m. in Kisarawe village and was organised to mirror the data generated from the first investigation process. Workshop participants were invited to receive preliminary results of the research, as obtained from the analysis of interviews, focus group discussions, and from historical documents and archival records. This session presented the preliminary results of the research to the participants to let them reflect on key insights, collectively negotiate issues, and make collective deliberations. Daniels (2008) suggested that "work in the change laboratory workshop typically starts with the example gained from the interviews and data collected, designed to mirror present problems" (p. 133). Thus, the results of the first investigation were summarised, as shown in Appendix 3, and presented to participants using the national language, Kiswahili. The content for the presentation was mainly sourced from Tables 5.1, 5.2 and 5.3. Printed copies of the presentation were circulated to all participants for reading, correcting and gaining better understanding of the matters. Figure 4.5 depicts some of the workshop participants studying the material. Initially, the idea was to support the presentation with video clips from focus group discussions, but this was not possible because the workshop venue, which was a beautifully furnished venue by village standards, lacked electricity.

***Figure 4.6: Some of the workshop participants studying the mirrored data from results of the first investigation process***

*4.4.8.3 The second session of the workshop*

The second session of the workshop took place from 11.30 a.m. to 16.00 p.m. This session facilitated collective and collaborative reflections on the relevance of REDD project mechanisms to adaptive collaborative management in terms of local interrelational practices. For a full discussion see section 6.5.1. Validating the REDD project mechanisms against a framework of adaptive collaborative management was in line with global arrangements for influencing transformational adaptation of climate change impacts in local communities, as described in section 2.6.6.4. A range of assumptions for interrelational mechanisms fit for adaptive co-management approaches were primarily drawn from the works of Cundill (2010), Cundill et al. (2011) and Cundill and Rodela (2012). Characteristics of interrelational mechanisms were also acquired by building on earlier works of Berkes, Colding and Folke (2003), Olsson, Folke and Hahn (2004), Plummer and Armitage, (2007), Armitage, (2008), Pahl-Wostl et al. (2008), and Plummer (2012), as described in section 2.6.6.3. Eventually, a list of nine assumptions for adaptive co-management interrelations was adopted from Cundill (2010) to stimulate collaborative reflections and validation of the REDD project. The list includes:

1.      trust building;

2.      established common interests, with similar stakes in ecosystem management;

3.      economic or other incentives to participate;

4.      security of tenure over the resources of concern;

5.      a perceived value in sharing information;

6.      a willingness to engage in collaborative learning and decision making;

7.      sufficient funding to enable practical action and experimentation;

8.      social networks that allow effective information flow; and

9.      effective local leadership or an 'honest broker' to facilitate conflict resolution.

The nine items advanced as interrelational mechanisms were used to identify characteristics of adaptive collaborative practices for validating the locally employed REDD practices. Participants worked in four groups of six people each and were chaired by the village chairmen. Outputs from groupwork were presented in plenary sessions for all workshop participants to share, comment on and approve. The overall workshop output was later analysed by using indicators of learning evidence described in section 3.3.5 and further explained in section 5.2.

### 4.4.9    Direct observation

Methods of direct observation were employed throughout the field process (Yin, 2012). Direct observations were performed during meetings with chairmen, interview sessions, focus group discussions, the reflexive workshop, and other side-activities. Thus, direct observation was a cross-cutting method supporting other sources of data for understanding actions, events and circumstances that were occurring (Yin, 2012). Examples of direct observation evidence could be quite diverse in form and orientation depending on the observer's scope of coverage. Alvesson (2011) claimed some of the directly observable features could include the forest conditions, people's living styles, leadership styles, social norms, ethical practices, andstatus cues in individuals and communities. Alvesson (2011) also emphasised the interdependence of data collected from interviews and direct observations, noting an important difference between the two:

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The interest in local circumstances and processes within interviews … does not prevent the author from believing in an ability within interview answers 'to convey situated experiential realities in terms that are locally comprehensible' … and in interview subjects holding facts and details of experiences, although in an interview a person 'constructively adds to, takes away from and transforms the facts and details'. (p. 22, original emphasis)

Maxwell (2012) also recommended the use of direct or participant observation in realist research by advising reseachers to constantly carry out direct observations of prevailing circumstances during the research process. He underlines the epistemic consequences that may occur in failure to involve direct observations. Perhaps contradicting some of the tenets of critical realism, Alvesson (2004, p. 39) cited Berker (1996) to elaborate on the consequence: "It is invariably epistemologically dangerous to guess at what could be observed directly". According to Bhaskar's ontological depth framework, the observations were to inform analysis of experiences at the level of the empirical. Thus, I sought to capture as much detail as possible, but with the understanding that this did not reflect the full reality.

*Table 4.11: Table showing items of direct observation, places and dates of observation*

| Date | Places and items of observations |
|------|----------------------------------|
| 1<sup>st</sup> week of March 2012 | *Physical observation of the two forests of Pugu and Kazimzumbwi and the community surrounding the forests. Interacted with village chairmen, village executive officer, and research informants.* <br><br> **1.1.2** <br> Observation on general forest status in forest reserve near village land areas, e.g. at Muguruwe village, Kisarawe village and Nyeburu. These observations supported the previously suggested status of physical degradation of forest reserves in the Kisarawe district, as discussed in section 1.3.1.2. I observed the physical conditions of the village sites, location of places, distances between places, the population, and infrastructures, as discussed in section 4.4.1. For instance, the photo in Figure 4.6 of the Pugu forest reserve was taken from the site of the Kisarawe primary school, where the work executive office was located. Direct observations of people's general practices and behaviours was performed, especially during working hours, e.g. observations of people who seemed busy, jobless, loitering around, chatting in cellphones, eating and drinking. Some of the observed items were used to strengthen research explanations, as exemplified in sections 4.4.1.2 and 4.4.1.4, and sections 6.6.2 and 6.6.3. |

| From March to September 2013 | *Conducted several formal and informal meetings and visits. I had several conversations with individuals at the research site, including village leaders. The observations covered the entire period of the first investigation process.* |
|---|---|
| | As I regularly interacted with village chairmen, I observed their styles of leadership and management systems. For example, I observed office arrangements, information management, documentation, and orientation towards people's learning and networking. I observed leader's visions in politics, social and human-focused development. |
| | Direct observations were performed during interviews and focus group discussions. This involved people's observable reactions on PFM and REDD project interventions. Examples of observations included telephone conversations, interruptions by family members and other people, social comforts and discomforts. |
| | I observed peoples lifestyles in different locations within the three sub-sites. I observed people's living standards in terms of economic activities, people's social practices, local politics and beliefs, which could explain the presence or absence of potentials for learning and transformation. |
| From 2nd week of May to June 2014 | *I interacted with all village people that participated in this research. This was during the preparations for the reflexive workshop and after.* |
| | I observed social-political and power relations between individuals occupying different positions and especially among village leaders (i.e. village chairmen, and village executive officers), ward authorities, and district authorities. I observed management practices and flow of commands, as well as communication channels in the management of village issues and how those influenced efficacy, common understanding, and learning. Direct observations were also extended to participant's practices during the reflexive workshop, where they worked collaboratively with other participants. Examples of directive observations included the dress codes, and the talking and gesturing of people to one another, as expressed in sections 6.2.1, 6.2.2 and 6.4.2. |

***Figure 4.7: Picture showing the southern part of Pugu Forest Reserve as observed during field work in March 2013***

## 4.5    DATA ANALYSIS

This research was mindful of flexibility in analysing qualitative data and so an analytical approach was chosen to suit the contexts of the study (Ryan, 2006; Cohen et al., 2007; Corcoran et al., 2007; Clandinin & Huber, 2012; Maxwell, 2012; Yin, 2012). The analysis process was also grounded in realist case study approaches (Maxwell, 2012), as expressed in section 3.2.1. Maxwell and Miller (2012) recommended qualitative case study approaches for realist data analysis, based on their ability to retain connections between the data and the contexts. They advised researchers to mind the contextual connections when categorising data into similarities as well as in contextually connected relations (ibid.). The process of analysing data in this research started during early stages of field inquiry, when relevant insights from collected data were related to interests of the research and relevance of the events to the context (Cohen et al., 2007; Alvesson, 2011; Maxwell and Miller, 2012).

### 4.5.1 Inference making

Sabai (2014) researched traditional ecological knowledge on the eastern coast of Tanzania and considered different ways of "thinking, reasoning, arguing, interpreting, and making sense" of data as processes of inference making in research analysis (p. 120). He supported the assertion by Danermark et al. (2002) that the process of inference making is a "fundamental precondition for all knowledge and knowledge development" (Sabai, 2014, p. 120). Inference was also defined by Maxwell (2012) as a means or process of creating research accounts from the collected data. Hartwig (2007),cited in Sabai (2014), defined inferences as cognitive processes of the researcher that draw research arguments and conclusions from empirical premises. Inference making in critical realist research may also involve researchers' power of imagination, intuition and creative assumptions (Sayer, 2000; Danermark et al., 2002; Easton, 2010).

Following such arguments, this research employs different types of inference, especially those that align to critical realism research for creating reasonable arguments from data, e.g. in organising and giving meaning to empirical events. An example of inference making is the sorting of the collected data into chronologies of timeline events before applying Archer's (1995) framework of morphogenesis/stasis (see a more detailed description in section 5.3 and 5.4). Only logic and reasoning were used, supported, of course, by the context, and methodological and theoretical frameworks of the research (Sabai, 2014). Inferences were also used in creating social and physical connection between empirical events, e.g. between forest events and income generation activities (see Table 5.4); forest events and learning assumptions; and the framing of learning indicators and/or framing of interrelational mechanisms (see section 5.2 and section 6.5.1).

Danermark et al. (2002) suggested *induction, abduction, and retroduction* as the three modes of inferences to be employed by realist social researchers in varying levels of logic. All three modes of inference were used in this research to describe and interpret forest events and find possible social-cultural and historical relations and causal explanations (ibid.). The process of data analysis in this research was carried out in two levels, roughly mirroring the two lines of investigation processes described earlier in section 4.4.2, with indistinct lines of separation.

*4.5.1.1 Inductive mode of inference*
According toDanermark et al (2002), the mode of induction uses formalised logical conclusions. He described the induction mode of inference as formalised logic, which is not

strictly logic in following hypotheses. The inductive mode of inference differs from the deductive mode (strictly logical) in deriving conclusions in socially-descriptive contexts (ibid.). Sayer (2000) looked at the occurrence of social events in different possibilities of open-endedness, which explains why inductive logic, unlike scientific deductions, is not confined to strict logic. Thus, inductive logic was used in this study to examine patterns of events associated with changes in forest management activities in the Pugu and Kazimzumbwi community. Occurrence and patterns of forest events were inferred from different forms and stages of human socialisation, including learning, agency formation, and social change. Through events from the data, or logically 'induced' conditions in present learning conditions, the past learning was speculated, estimated, and argued for, as is further explained in sections 5.7.1, 5.7.2 and 5.7.3. Thus, logical inductions were used to suggest and predict reasons for the occurrence of events and changes in distant times. For instance, in moments where people's experience showed radical or rational changes in processes, inductive logic could help speculate the existence of any spatial forms of criticality in the community lives (Sayer, 2000). Such critical moments may include reflexive thinking, questioning assumptions, deliberative challenges, informed choices, and decision making (Mezirow, 2003, 2004, 2009; Dirkx, Mezirow & Cranton, 2006; Wals et al., 2009; Reed et al., 2010). Critical moments can also signal conscious engagement of individuals in reshaping local agency, learning, and promoting social change under different conditions of the project interventions. Sections 5.7.3, 5.7.4 and 5.10.3 provide a few examples of critical moments involving such reflexive thinking.

### 4.5.1.2 Abductive mode of inference

The modes of abduction and retroduction are described by Danermark et al. (2002) as analogical in arguments and in drawing out conclusions. Abductive inferences are defined as a means of re-describing concrete social entities as unobservable, generalised forms of structures (ibid.). Abduction involves a re-contextualisation of specific empirical events into theoretical assumptions and re-describing the event according to particular theoretical frames of interpretation. The arguments drawn from such conclusions are based on the universal assumptions of the specific entities as agreed by specific theoretical assumptions. Unlike induction, abductive inferences may be performed completely without guidance from empirical observations. The resulting conclusion produces new forms of entities and events that may be entirely different from the empirical context (ibid.). Abductions complement inductive inferences in finding deeper arguments of the same entities within different frames

of interpretation. While induction is guided by empirical observations for reasoning, abduction can deepen the explanatory power of the argument by drawing conclusions from theoretical possibilities.

### 4.5.1.3 Retroductive mode of inference

As mentioned at the beginning in the previous section, retroductive modes of inference are analogical. Retroduction is a mode of inference that moves from knowledge of one entity to knowledge of completely different things (Danermark et al., 2002). Easton (2010) identified the "completely other different things" as powers and mechanisms, which are accountable for the existence and appearance of the entity of interest (p. 123). He defined the term retroduction as "moving backwards" and digging back to find that causal mechanism that puts entities in place (ibid.). Easton (2010) described retroduction as a meta-process that leads to the identification of structures and mechanisms that cause events to occur or to behave in their observable ways. Danermark et al. (2002) observed that retroductive inferences provide arguments explaining the underlying conditions for existence of social entities. It therefore follows that retroductive inferences complement abductive arguments by clarifying the mechanisms governing certain theoretical relations that formed plausible references (ibid.). Both abductive and retroductive inferences are based on explanatory arguments of newly emerged relational items, which are different from the concrete events. The power of the two modes of inference lies in the ability to forge best explanatory critiques on internal relations, which is central to critical realist research (Easton, 2010; Maxwell, 2012; Sabai, 2014).

This research employed both abductive and retroductive analysis in describing events within universal frames of interpretations, as explained in Chapter Three and operationalised in Chapter Seven. Changes in forest events and the emerged learning were redefined according to the perspectives of generalised philosophical assumptions, meanings and reasons. The research was able to extract learning insights from general perspectives depicted and supported by deeper ideological assumptions. Abductive and retroduction inferences specifically explore different possibilities for best explanations of events in order to broaden the rigour of argument. Retroductive inferences allowed transfactual evidence to enhance arguments by bringing up transcendental reality, as is discussed in further detail in Chapter Seven. Both abductive and retroductive analysis were used to unpack learning evidence through the realist depth ontology, as shown in sections 7.3.1, 7.3.2, 7.3.3, 7.3.4 and 7.5. The analysis of data was done on two levels which are discussed in the following sections.

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### 4.5.2 The process for data analysis level I

Analysis level one dealt with data that was generated from interviews, historical documents, archival records, and focus group discussions, gathered in the first investigation process. Data from the analysis of documents and archival records was triangulated with data from interviews and focus group discussions to corroborate and draw complementarity on the emerged themes (Lather, 1986a). This data was also foundational for viewing connections in social-cultural and historical contexts of forest practices reflected in community perceptions through the data (Somekh & Lewin, 2011; Maxwell, 2012).

*4.5.2.1 Index coding of participants' names*
Index coding of names of research participants was used to safeguard people's identities and for ethical confidentiality. See Table 4.10 for a list of participants who were involved in various process of the research. The index codes consist of the initials of the sub-site to which the individual belongs, the village name in the sub-site, and initials of the individual. The index codes also included a number indicating when the interview was held during field inquiries (1 for first and 2 for second round of interviews). An example of an index code is 2K1JH, which represents a participant whose name is John Homma (indicated by JH) from Kisanga village (indicated by K) of sub-site II (indicated by 2) who was interviewed during the first round of interviews (indicated by 1). Note that John Homma is not a real name.

*4.5.2.2 Annotation of timelines*
During analysis level I annotations of timelines were created for changes in forest management approaches (Yin, 2004; Jackson, 2008). Annotating timelines aimed to assemble the first investigation data into chronologiesof sequential events over the historical period of ±15 years (Yin, 2012). The timeframe of ±15 years was estimated to cover the period shortly before the year 2000, when PFM was introduced at PKFR, to the year 2015, when a pilot project for REDD was planned to end. Four timelines were developed following observations in the preliminary data. Each of the four timelines was a significant spatial-temporal thread of about five years of forest experience (see Table 5.1).

Yin (2004) recommended that case study researchers undertake social studies of different phases in the lives of a community. He believed that by studying communities through different phases, researchers could build adequate knowledge of social phenomena and enhance their understanding of structural relations existing in communities. Daniels (2008) claimed Vygotsky's work of the 1970s advocated for critical accounts of developmental

changes in learning processes. He noted that Vygotsky's work emphasised developmental changes under mediation of social-cultural formations (ibid.). Daniels (2008) described Vygotsky's perspective of systemic studies of learning under changing historical conditions as follows:

> To study something historically means to study it in the process of change; … To encompass in research the process of a given thing's development in all its phases and changes – from birth to death – fundamentally means to discover its nature, its essence, for "it is only in movement that a body shows what it is …". (Vygotsky cited in Daniels, 2008, p. 13)

By following developmental changes over historic forest events, the research was able to place the first investigation data in sequences of chronological timelines. Timeline mapping helped to place sets of forest events in temporal sequences of occurrence. The sequential occurrence was then used to interpret the contextual connections of the events and the meaning conveyed by the events for learning implications (Maxwell, 2012). Timeline mapping was inductively constructed from patterns of first investigation data and was methodologically exercised to develop ex-post factor research. Ex-post factor research in this study was employed in order to involve the learning events that had occurred in the past. The past refers to the time before the REDD project was introduced at the site in 2011 (Rodela et al., 2012). Logical inductions, as explained in section 4.5.1.1, were performed to locate changes in learning conditions before PFM projects were introduced to the site. The previous history of learning conditions created settings for supporting the newly introduced learning interactions at different spatial-temporal moments. The present patterns of events in PKFR that were used to develop logical inferences for ex-post factor research, did not only picture the past learning but also the future possibilities of learning landscapes (Danermark et al., 2002; Bernard & Ryan, 2010). Timeline mapping was supported theory as it served to establish the temporality of events congruent with the assumptions of realist social tools. Sequencing of forest changes and the learning episodes that emerged could enable observations of powers and properties in individuals and structures.

### 4.5.2.3 Concept formation and logical modelling of indicators

Concept formation, similar to coding or categorisation of data, was performed through manual scanning of the data generated from the fieldwork. Concept formation aimed to identify relevant local practices that were speaking to the major learning concepts of the research. The identified phenomena with their related connections were categorised in conceptual maps reflecting characteristic social learning in everyday lives of the people at

Pugu and Kazimzumbwi (see part B and part C of Figure 3.5). The breadth and levels of learning insights from people's stories, verbatim scripts, archival documents, and field observations were too overwhelming to illuminate basic features of learning (Ryan, 2006; Clandinin & Huber 2012; Yin 2012). Hence, the research skimmed through the relevant learning practices and identified lead indicators for the learning evidences, as described in Table 3.2. Mapping of ideas from social learning scholars, transformative learning scholars, and social practice scholars (see 1.6, 2.6.5, 2.6.6, 3.3.3 and Table 3.2) culminated in the substantive theory of the research presented in section 3.3.4. The substantive theory served as an analytical tool for defining indicators of learning, as well as a theoretical tool to guide substantive analysis of learning processes.

*Table 4.12: Summarised events of analytical level I*

| Research question | Broad approach to analysis |
|---|---|
| ANALYTICAL LEVEL I | |
| RQ1: What changes in the two innovative focuses of forest management are evident at PKFR over time? | Identification of pre-REDD and existing forest management practices related to the two focuses of forest management outlined in Figure 1.1 (enforcements and incentive schemes). Tracing the trend of changes as the community was introduced to REDD project activities and broader REDD forestry assumptions. |
| RQ2: When did the changes begin, how have they emerged, how were they being engaged with, and what influenced the changes in practice? | Detailed timeline mapping (ongoing) with inductive annotations from field based data (updated continuously after analysis of existing data, focus group discussions, and observations). Inductive annotations of timelines based on commonalities and contiguity, as suggested by Maxwell (2012), for supporting connections of events from ex-post factor research to REDD forest practice. |
| RQ3: What social learning is evident within specified changes in forest management practices? How does it occur and why? | Abductive analysis using Wals (2007), Wals et al. (2009) and Reed et al.'s (2010) concepts of social learning theories to logically model the indicators of learning evidence in individual cognition, social units, re-actualisation of individuals in changed perspectives, values and practices. Do the learning processes show evidence of reframing or sustained changes in social practices? (normalised practices, different from earlier practices). Abductive analysis of the structural, cultural and personal emergent properties and powers and their interactions to establish how the learning processes emerges and is engaged with using Archer's (1995) analytical dualism through the morphogenesis model of analysis. |
| RQ4: Is such social learning transformative? | Inductive and abductive analysis of learning events to examine transformative reflexivity using Mezirow (1998, 2003, 2004, 2009), Kitchenham (2008) and other transformational theories of learning. Abductive analysis of practice discourse associated with changed practices to identify the moments that shaped the learning using practice changes (Schatzki, 2001; Hargreaves, 2011; Kemmis & Mutton, 2012; Schatzki, 2012). |

### 4.5.3    The process of data analysis level II

Analysis level II of the data worked mainly on evidence generated from the second investigation process. The data of the second investigation process was largely generated from deliberations of the focus group discussions and from the reflective workshop, as discussed in section 4.4.2.2. The data was supported by insights from direct observations during group discussions, workshop deliberations, and informal interactions. Photographs and written materials from group work in the workshop were constitutive of the second investigation evidence.

Inductive mapping of data from focus group discussions concerning the REDD project was performed for developing thematic categories from empirical evidence. This process involved segmenting the data into four categorical themes discussed in the focus group discussions (Maxwell & Miller, 2012). The data was then described using inductive relations and connections to social-cultural, political and historical conditions and thick description (ibid.). Through inductive inference, the research created some assumptions to guide the interrelational mechanisms in the REDD project, based on tenets of adaptive collaborative management. The developed interrelational mechanisms of adaptive collaborative frameworks, as described in section 4.4.8.1, were used by participants to reflect on REDD project practices on the ground. This was done during the reflexive workshop and the outputs of participant reflections were linked to learning evidence observed in focus group discussions for the same issues (experiences of REDD practice). The resulting argument reflects on learning, agency formation, social change and transformations, as is further discussed in Chapter Six.

Leaning evidence was finally re-contextualised through Archer's (1995) morphogenesis/stasis cycle for creating a social-realist perspective on the empirically described events. Analytical dualism was applied to separate the autonomies of forest structural/cultural from human agency in order to observe their respective powers and properties. Abductive analysis of forest changes and emergent properties of learning were contextualised in the morphogenesis/stasis cycles, as shown in section 7.2.1, 7.2.2, and 7.3.). The emergent properties of structures, cultures and agency in the form of structural emergent properties (SEP), cultural emergent properties (CEP), and personal emergent properties (PEP) were identified at different times and conditions of the morphogenesis/stasis cycles (see examples of SEP, CEP and PEP in Tables 7.2 and 7.5). The emergent properties and powers

generated by REDD mechanisms informed the opportunities and limitations availed for learning and social change in the community. Retroductive inferences of emerged properties of learning helped to identify the mechanisms through which human agency influences structures and vice versa (Archer, 1995; Bernard & Ryan, 2010).

Discursive interactions of forest activities through the dimensions of physical space-times, semantic space, and social space were observed in relation to social change and learning. The practice arrangements provided the research with tools to assume a constant interplay of material-economic structures, cultural discursive phenomena, and social-political relations, as exemplified in Figure 7.5. The arrangement of those in space and time approximately indicated social changes and associated implications for social learning and transformations (Schatzki, 2012; Kemmis et al., 2014). Considering changes in practice arrangements helps to identify power relations, how thinking is oriented, world views, normativity, social development and other such dynamics. Hargreaves (2011) drew attention to changes in practice arrangements that are not visible enough to be noticed in people's experience. He advised researchers to note signals of subtle changes in practices that may amount to visible social transformations.

*Table 4.13: Summarised events of analysis level II*

| ANALYTICAL LEVEL II | |
|---|---|
| RQ 5: What forest practices introduced by REDD project mechanisms relate to social learning and transformation?<br><br>RQ 6: How do such mechanisms influence social learning and transformation and why? | Wider abduction and retroduction of critical contextual analysis to establish whether the specific practices in the study influenced social or transformative learning in the wider sense (i.e. beyond changes in approaches and practices), and if so in what way, i.e. are the changed practices viable and sustained? Do they meet poverty alleviation, greenhouse gas reduction goals of REDD? Analytical dualism was employed to interpret wider structural mechanisms and interactive causal mechanisms (REDD mechanism) shaping the learning and transformation spaces. |
| RQ 7: What are the enabling and constraining conditions for the people of PKFR to learn and transform as they take up new forest management practice?<br>RQ 8: How do the conditions shape (enable or constrain) human agency and transformative social learning through adaptive co-management? | Abduction, retroduction through analytical dualism to identify structural, cultural and personal emergent properties (SEP, CEP and PEP) and powers shaping and influencing social learning, agency and changes in practice and how they reinforce each other.<br>Morphogenetic analysis of $T^1$-$T^4$ using Archer's (1995) model of morphogenesis/morphostasis, drawing on and synthesising analyses of RQ1-7, outlined above. |

## 4.6 VALIDITY, TRUSTWORTHINESS AND ETHICS IN THE RESEARCH

### 4.6.1 Validity and trustworthiness

Multiple methods of inquiry were employed to ensure depth and rigour in the research process. Multiple sources of data were used for triangulation, as explained in section 4.2. Repeated sessions of interviews with the same subjects with different methods of interview inquiry promoted alternative modes of interaction and helped to make the interactions more relaxed (Merriam, 2002; Gallagher, 2008, p.163; Lather, 1986a). Modes of interviewing changed from face-to-face, to telephone talks and informal meetings. Cohen et al. (2007) considered the quest for validity in qualitative research in terms of "measure of degree of honesty, depth and richness of data as well as levels achieved in the objectives and methodological integration" (p. 134).

Maxwell (2012) advised researcher to link validity issues to the entire research process by ensuring validity alignment with research questions, methodology and theoretical frameworks as well as the inquiry methods as described in section 1.7. Field interactions were undertaken during a three-year iterative process of field visits and feedback, which made the research process flexible enough to cope with contextual dynamics. The three years of iterative visits involved regular audit trails, member checking through mirroring data, and reflective validation of data, as proposed by Maxwell (2012). Maxwell (2012) identified validity issues, including descriptive validity, interpretive validity, and theoretical validity as important for maintaining the trustworthiness of the research.

This research may also influence rural people's understanding of their roles, responsibilities and accountabilities, as they form part of the stakeholders in the development projects. Rural people may actualise their own selves as actors in change-oriented collaborative initiatives (Lather, 1986a, 1986b). Community members engaging in active reflecting project mechanisms may be enlightened of their own roles in the projects, as shown in section 6.4.2. This may have an impact on community actions and emancipation reflecting catalytic validity (Lather, 1986b). An integrative account of validity can be regarded as an extended contribution of the research to the community (Massey & Barreras, 2013).

### 4.6.2 Research ethics and self reflexivity

Ethical considerations, including community values, norms and codes of conduct, were considered throughout the research process. Merriam (2002) identified research ethics in qualitative research as more than 'codes of conduct' since they involve concerns for others, humility and respect for both members of the research team and the research participants. Maxwell (2012) described the same shift when he described ethical concerns in realist qualitative research by linking overall human to human relationships that embody qualitative research processes. Building on both Merriam (2002) and Maxwell (2012), this study strived to ensure ethical coherence in the research process by building real connections with local people in the community. The process involved a conscious creation of mutual trust, respect and friendships (Alvesson, 2011; Yin, 2012). Also building on Smith (2008), this research positioned ethical issues into relational views by enhancing self-consciousness and self-reflexivity in research interactions with the community. The research was also sensitive to specific ethically situated problems that arose from interactions in the research, as suggested by Smith (2008):

> Increasingly, however, research ethics has come to be a focus of indigenous efforts to transform research and institutions … Research ethics is often much more about institutional and professional regulations and code of conduct than it is about the needs, aspirations, or worldviews of "marginalized and vulnerable communities"… For indigenous and other marginalized communities, research ethics is at a very basic levels about establishing, maintaining, and nurturing reciprocal and respectful relationships, not just among people as individuals but also with people as individual, as collectives, and as members of community, and with humans who live in and with other entities in the environment… (p. 128)

Smith (2008) asserted the need to promote critical interactions which "require critical sensitivity and reciprocity of spirit by the researcher" (p. 129). This notion was strongly emphasised by Lather (1986b) in developing research validity. My approach of courtesy visits to village chairmen prior to formal fieldwork was, for instance, advancing my rapport with the community. The preliminary visits created and strengthenedpersonal relationships with members of the community. Frequent visits to village chairmen enabled common understandings and localising of the research interests in local people's sense of meaning and judgement.

My identity as a staff member of the Wildlife Conservation Society of Tanzania inspired ethical reflexivity at different levels of interaction. People have had varying experiences with

the Wildlife Conservation Society of Tanzania and thus community members might have varying expectations of me as an employee of the Society. I was carefully reflexive in separating my two identities: as a researcher and as a staff member of the Wildlife Conservation Society of Tanzania. The identity issues were more pronounced when responding to project issues referenced to the Wildlife Conservation Society of Tanzania. Mixing the two identities would have complicated the overall cultural protocols, e.g. reorient person to person respect and the integrity of day to day practices in social learning. Smith (2008) emphasised the complexity of the researcher's positioning in the field by cautioning researchers to be reflexive and self-aware of their personal positions within the relationships and the emerging power relations.

The paradoxical nature of "self" was also described by Bhaskar's (2011) in his meta-reality approach. He identified the feature of self as represented by "I" and commended that the "I" is always separated from other selves and from other relative objects including the emotional states that may exist.He thus considered the realist "self" as a relational and situational *emergent embodied personality*' (p. 70 emphasis original). Each state of self is therefore supported by generative powers and so contributes to production of individual agency and personalities relative to situational mechanisms (ibid.).

To conclude this section, I adhered to ethical modes of inquiry in terms of sensitivity to gender, age groups and status quo. I was sensitive to and carefully reflexive of transparency of information and document management. I was strategically democratic and committed to cope with individuals' anxieties, worries, and expectations. Gallagher's (2008) definition of reflexivity implied holistic accounting of a researcher's self-positioning in research interactions. Gallagher's (2008) definition encompassed reflections on the research process, the field relationships, and the influence of the research on power-sharing in the intended social change and actions beyond the research. This meant that I sought to be constantly reflexive of the research process and the contextual limits, as well as the wider technical, political and administrative actions in the country.

## 4.7 CONCLUSION

Chapter Four has described the research process in terms of research design and methodology used in conducting the research. The chapter described the conceptual and methodological tools that shaped the research process. The details of fieldwork interventions, data processing and iterative analysis through two levels of data analysis was also discussed. The last section

of the chapter expressed concerns of and sensitivity to validity, trustworthiness and ethics in conducting the research. The thick data descriptions from the first and second investigation processes mentioned in this chapter, will be presented fully in Chapters Five and Six respectively. The thick descriptions which helped to present the results will be subject to further theoretical re-contextualisation in generalised models of abductive and retroductive analysis in Chapter Seven.

# CHAPTER FIVE: UNFOLDING EVIDENCE OF TRANSFORMATIVE SOCIAL LEARNING AND PRACTICE ORIENTATIONS

## 5.1 INTRODUCTION

This chapter presents a descriptive analysis of learning evidence observed during the first investigation process, as explained in section 4.4.2.1 and section 4.5.1.1. The analysis recognises the extensive possibilities of social learning spaces offered by iterative feedback in social-ecological settings, which can sometimes be overwhelming. For instance, Cundill and Fabricius (2009) advised social-ecological studies to orient learning towards practices, transformation, local engagement, and collaborations in order to remain focused. This present research explores, identifies, describes and interprets evidence of social learning and potential for social change relevant to changes in forest practices. The chapter addresses issues raised by the first and second specific objectives of the research. The objectives were composed of four questions, namely: (1) What changes in the two innovative focuses of forest management are evident at the PKFR over time? (2) When did the changes begin, how did they emerge, how were they engaged with, and what influenced the changes in practice? (3) What social learning is evident within specified changes in forest management practices? How does it occur and why? and (4) Is such social learning transformative, and if so, how? (see section 1.2.2)

This chapter presents a thick description of the general trend of changes in broad approaches to forest management at the Pugu and Kazimzumbwi forest reserves. The tracking of changes in forest management practices and the learning associated with the changes was confined within the two innovation focuses in forest management. These innovation focuses were identified during a contextual profile, described in section 2.7 and presented in section 4.4.1.4. The innovation focuses are the Forest Management Enforcement Practices (FMEP) and Forest Management Incentive Scheme Practices (FMISP). Specific learning insights emerged from various spaces created by changes in forest management approaches. Direct quotes from the data are used to support the descriptions of forest management changes and the learning implicated in the events and practices in the sites.

## 5.2 MODELLING OF INDICATORS OF LEARNING

Logic modelling of indicators of learning was used to create an analytical framework for considering the learning as explained in section 3.3.4, 3.3.5 and 4.5.2.3. Five indicators of

learning evidence were derived from clustering of possible learning processes as shown in table 3.2 and displayed in figure 3.4 and 2.1. The framed indicators of learning were used as references for possible learning spaces in this research. This study is conscious of the possibility of having multiple indicators of social learning and change through various spaces in community interactions in practices. In this study, however, I limited the potential range of learning indicators to five cluster indicators, as discussed in section 3.3.5 and Table 3.2 and described below as these were the strongest forms of indicators identified in the literature.

1. **Engagement** of local actors in forest activities is a space for practice knowledge (world views) of local people to meet introduced assumptions (world views) of new forest management practices (Wenger, 1998; Wals, 2007; Kemmis, 2009; Lave, 2009; Reed et al., 2010;). Engagement, including physical and emotional concerns, was considered as an indicator of learning, see Figure 3.5 (1) and Table 3.2 (1). A lack of engagement was also regarded as an alternative form of learning from which the community may acquire different learning orientations.

2. **Changes in peoples' understanding** is also identified as a learning indicator when the change was extended to community, social networks, or any larger social groups (Wenger et al., 2002; Glass et al., 2012; Reed et al., 2010; Cundill et al., 2014), see Figure 3.5 (4) and Table 3.2 (4).

3. **Coping with tensions** is identified as an indicator of learning based on individual or community strategies for coping when facing challenges in adapting to new approaches. Tensions include the questioning and the testing of new assumptions of the new world views. This may manifest in social disruption and uncertainty, which can precede social stability, creativity and innovation (Glasser, 2007; Wals et al., 2007; Smith, 2008; Kemmis, 2009; Jackson, 2013), see Figure 3.5 (3) and Table 3.2 (3).

4. **Motivation or empowerment** of local people for doing project activities is another indicator of learning. Motivation encompasses commitments, rational decisions, praxis actions, confidence, trust, and signs of emancipation (Mezirow, 1998, 2000, 2004, 2009; Reed et al., 2010; Wals et al., 2009). The opposite of empowerment was considered as demotivation or disempowerment, which may reflect on different orientations to learning (Wals, 2007), see Figure 3.5 (2) and Table 3.2 (2).

5. **Subtle shifts in practiceor transformational changes**are also identified as an indicator of learning. Shifts in practices may include shifts in perspectives, social

relations, practice adjustments, and unsustainable changes (Hargreaves, 2011; Kemmis & Mutton, 2012; Schatzki, 2012), see Figure 3.5 (5) and Table 3.2 (5). Changes are regarded as transformational if are sustainable, are frequently and reflexively practiced and / or are normalised in the community (Mezirow 2000, 2009; Hargreaves 2011; Schatzki 2012).

## 5.3    CHRONOLOGY OF HISTORICAL CHANGES IN FOREST MANAGEMENT APPROACHES AT PUGU AND KAZIMZUMBWI FOREST RESERVES

The annotating of timelines of changes in forest management was methodologically described in section 4.5.2.2. The chronology of events in forest approaches at the PKFR community was for convenience in this study divided into three chronological trends:

(i)    Annotation of timelines for broad approaches to forest management practices (Table 5.1).

(ii)    Annotation of timelines for changes in Forest Management Enforcement Practices (Table 5.2).

(iii)    Annotation of timelines for changes in forest management incentive schemes practices (Table 5.3).

Overall, four threads of chronological timelines emerged from the data generated during field work, and the four threads were mapped in each of the three chronological trends, as shown in Tables 5.1, 5.2 and 5.3. Analytic inductions of forestry events along the four threads of timelines were performed to construct historical accounts of changes in forest practices over a timeframe of ±15 years. Insights from local people's perspectives were used to induct the historical accounts of changes in management approaches, enforcements, and incentive practices. The historicity of events was then used to identify learning potential, learning opportunities, and possible limitations within the interventions. Indicators of learning were used to locate and describe learning spaces that emerged from the historical changes.

## 5.4    TRENDS OF BROAD APPROACHES TO FOREST MANAGEMENT AND ASSUMPTIONS FOR COMMUNITY LEARNING

This section describes a general perspective of changes in forest management approaches across the four threads of timelines at the PKFR community, as shown in Table 5.1. The table also outlines the general community assumptions on learning within the social-ecological interactions across the timelines. Through interactive changes, both systems (the human system and the forest system) are able to adjust and cope with different circumstances (see

section 2.6.6). The natural system reorganisations and adjustments openedup local assumptions on forest issues (see Table 5.1). Inductive analysis of data from the first investigation process and retroductive inference of past events enabled the research to mapout a history of events in forest changes. The data is supported by relevant policy trajectories in the country and the experience of participatory forest management in rural community development in the country. Empirical insights in changes of forest management approaches signal the prevailing material-economic conditioning and social political structures of the relevant timelines, e.g. secular changes, structural reforms and investments in forest conservation and livelihood development. This study considers only forest features and practices that are relevant to the Pugu and Kazimzumbwi forest reserves community and the specific learning interactions that emerged in the community surrounding the Pugu and Kazimzumbwi forest reserves.

## 5.5    CHANGES IN FOREST MANAGEMENT ENFORCEMENT PRACTICES AND THE LEARNING IMPLICATIONS TO THE COMMUNITY

This section describes the trend of changes in Forest Management Enforcement Practices at the Pugu and Kazimzumbwi community across the four timelines, as indicated in Table 5.1. It illustrates changes in forest enforcement practices and the accompanying insights for local people's learning, as presented in Table 5.2. Chronological details of people's living experience on enforcement practices were obtained from data generated by the first investigation process. Analytical induction on patterns of forest management enforcement events was done based on the perspectives of local people at the PKFR community. Thus, pattern mapping of timelines was informed by people's way of looking at enforcement activities as they engage in personal experiences and memories of events that took place over a period of ±15 years. This includes people's interpretations of forest enforcement processes and activatespersonal and collective reflections and different understanding of different enforcement experiences. The analysis observed regularity in the patterns by locating events within the five indicators of learning derived and described in section 0.5 and section 0.

*Table 5.1: Broad approaches to management of forest reserves and community assumptions for learning at the PKFR community (≥2000-2015)*

| Community perspective on broad approaches to forest management over ± 15 years and assumptions to community learning | | | | |
|---|---|---|---|---|
| | **Up to 2000** | **2000-2005** | **2005-2010** | **2010-2015** |
| **Broad approaches to management of forest reserves and the broad learning assumptions** | Approach: Management is centralised to government authority. Forest protected, forest staff restricting people from using resources from forest reserves. Learning assumptions: Community learning through a "do not touch" approach. Community learning by obeying strict rules and reflecting on punishments when rules are transgressed. | Approach: Government partnership with local agency. Forest staff as partners with community and advisors of partnership in managing forest reserves. Learning assumptions: Community capacitated to join management partnerships. Building of community structures for engagement in partnership. Environmental Education and awareness on forests widely spread in the community. | Approach: Integration of PFM approach into government programmes. Following the phasing out of external funding, government to adopt PFM practices. Learning assumptions: Encouraging people to continue with PFM-initiated activities. Government mainstreams PFM activities without financial implications for the community involved. People respond positively as they understand forest values. | Approach: REDD project ideas building on PFM agenda and approaches. REDD comes with value additions: introduces carbon trade and other entrepreneurial ideas. Learning assumption: Increased collaboration, increased community engagement in management processes and improving people's ownership on forest related financial benefits. |
| **Implications for community learning from** | Forest Reserves are national properties. Conservation is a science only practised by educated | Government sees the potential for community to take partnerships in conserving forest | Engagement of community in practical activities is reduced. Most of the local expectations | The community is fascinated by the idea of reviving PFM activities. A promise to achieve joint management |

| **perspectives of individuals at Pugu and Kazimzumbwi community** | people t. Citizens must listen to what the government says and must follow orders. Local people are not necessarily part of conservation actions.People must obtain their forest needs from unprotected land, as there is always plenty of land for people to utilise without contravene government rules. | resources. Community is to collaboratively own forest reserves with the government. Community trains on ways of managing forests and sharing the benefits from forests. Community as a stakeholder of forest management and benefits. Community to understand that forest resources could be transformed to sustainable commodity for community development. | are not realised, e.g. sharing benefits, having joint management agreements with government, etc. Community members confused by the new governance structures, e.g. communication channels and hierarchies on issues of forest reserves is complicated. What to claim, to who and how is confusing local people (between district officials and the forest manager). | agreements with the government was inspirational. Revamped the enthusiasm that was shelved in individuals' minds. Community is sceptic on how it is going to work out this time. Looking forward to the financial benefits introduced by carbon trade. Also looking forward to seeing forest regeneration and replanting of new trees for carbon stock. |
|---|---|---|---|---|

*Table 5.2: Chronology of Forest Management Enforcement Practices and the learning implications for local community*

| Chronology of Forest Management Enforcement Practices and the learning implications for local communities | | | | |
|---|---|---|---|---|
| **Learning indicators** | **Up to 2000** | **2000-2005** | **2005-2010** | **2010-2015** |
| **Change in Understanding** | Practice knowledge on managing forest reserves is built through heritage knowledge and tacit practice knowledge, e.g. hearing from elders, normalised rules and values, mutual respect, trust and fearing superior others. People may understand things without necessarily knowing the scientific reasoning for following the course of practice or behaviour. | Progressive changes from practice knowledge to PFM practices and praxis. People learn by participating and sharing insights on PFM policies. Co-creation of meaning and logic in forest management practices. Changes towards active participation in forest activities, e.g. mapping boundaries, drafting management plans and by-laws and the satisfaction of having forest reserves as common goods. | PFM practices and praxis knowledge exists in PKFR community. Participation in forestry practices and praxis is emotional. Emerging disagreements between people and government. Changing people's trust and expectations. Community is disappointed, but still eager to share forest benefits and get the joint agreements approved by the government. | REDD practices and PFM praxis exists. Expanded knowledge in trading carbon. Knowledge on non-timber values of trees. Community re-engaging with protecting trees and encouraging regeneration. Replanting of new trees, measuring of carbon stock, training of entrepreneurship for improving livelihood economy. |
| **Engagement** | Engagement of community was passive and not participatory. Community was emotionally engaged in building voluntary willpower to remain good | Active engagement (physical and emotional) in PFM activities, e.g. participatory planning, which also extends interaction to social networks. Emotionally | Reduced physical engagement but increased non-bodily engagement through tension, rethinking, re-assessing and validating of government's procedures | Extra community inclusivity. Collaborative field activities. Re-examining practices based on past experience. Group dynamics leading to tensions and coping |

| | | | | |
|---|---|---|---|---|
| | and obedient citizens. | delighted by recognition and identity. | and decisions. | strategy. |
| **Coping with tensions** | Community conformed to the rules of forest reserves with less tension in terms of following regulations. Community is disappointed by government's failure to control forest resources over outsiders. Tension from assuming government interests on forest encroachments. | Surprises and novelty in experiencing the ways of managing forest reserves. Letting go of the routinised logging practices and charcoal business was life risking to some community members. Inspiration from achieving PFM promises of joint agreements and better wellbeing in future. Adapting to new world view as best option under prevailing circumstances. | The community testing of PFM legacy against government's practices for integrating PFM. Community unsatisfied, uncertain, and worried about their future well-being. Forest encroachments among locals increased, resentment of community members lead to mistrust of the government. | Regained community morale, but increased scepticism, money syndrome, founder syndromes and intergenerational frictions emerged. Tension between older people, who founded forest committee in PFM and currently recruit members in REDD. Locals vs. implementing NGOs; committees vs. village governments, etc. |
| **Motivation/ empowerment** | Community motivated and empowered to trust the government's judgments. Believes in equal rights, justice, fairness, and government capability. | Sense of recognition for individuals and community, sense of belonging and identity, social justice, right for actions, and civil rights for local actions. | Commitment to forests through PFM legacy. Empowered by praxis knowledge. Looking for actions to get things right. Finding practical solutions to issues. | Improved facilities and financial base. Expectation of improving livelihoods and filling gaps of unfulfilled desires left by PFM. |
| **Shifts in practices** | **Non-bodilydoings:** perspectives for living a peaceful life by obeying | **Bodilydoings:** includes training on PFM and understanding of rules and | **Bodilydoings:** includes re-checking and follow-up of forest progress. | **Bodilydoings:** includes training and understanding of rules and |

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| and trusting the government, fearing to touch the forest reserves. **Bodilydoings:** questioning forest invasions, warning others from using forest reserves, transmitting the message from generation to generations. **Sayings:** metaphors that support forest reserves, like *'Msitu wa Serekali*[7]*'* and *'Forosta*[8]*'*. **Hierarchal relations:** top-down communication from government to local people. Hierarchy among community members by linear transmission of heritage knowledge from elders to younger generations. **Horizontal relations**: | guidelines. Participation in decision making meetings and acting on forests through nested activities. **Non-bodilydoings**: excitement, enthusiasm, expectations, thinking and reflecting on past, present and future projections. Personal agenda, intensions and motives. **Sayings:** about participation, mapping of forest, joint agreements, by-laws and metaphors, e.g. *'Mkuza*[9]*'* *'wahipuka*[10]*'*. **Horizontal relations:** lateral partnership communication, sharing understanding of PFM activities, mass mobilisation in forest-based advocacy, forest | Liaising with district forestry authorities whenever forest issues emerged in villages, e.g. reporting encroachments and questioning ill practices. **Non-bodilydoings:** includes re-thinking of partnership approval. Wishing to have approved forest by-laws and share forest benefits with the government. **Sayings:** include metaphors like *'Mmbwa asiye na meno'*[11]. Forest committees complain of lack of power from government, lack of cooperation from district police and district court for forest crimes. | guidelines for engaging in the REDD practices. Engaging in nested REDD activities with reflections of past experience. **Non-bodilydoings:** wishing a brighter future. Sceptism from community members about ensuring project viability and trusting NGOs management. Attention to financial benefits promised by REDD. **Sayings:** about money, payments for labour, trading carbon, corruptions, poor governance, and business as usual. Claims of fragmented implementations. |

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[7] 'Msitu wa Serekali': Kiswahili meaning for 'Government forest'. Local people claimed to know the words from the day they started learning about forests.

[8] 'Forosta': A word commonly used in PKFR community as slang for forest reserves.

[9] 'Mkuza': A word from the Zaramo tribe of Pwani region, which traditionally implicates the marking of farm boundary. It is widely adopted in forest mapping.

[10] 'Wahipuka': A Kiswahili abbreviation of Wana-mazingira Hifadhi ya Pugu na Kazimzumbwi (WAHIPUKA), meaning 'network of Pugu and Kazimzumbwi environmentalists'.

[11] 'Mmbwa asiye na meno': A Kiswahili metaphor that literally means 'Dog without teeth'. It is used to implicate powerlessness of the forest committees after the government declined to approve proposals for joint management agreement. In other words, the committees lacked legal powers.

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| informed persons pass the news to uninformed colleagues through extended talks, and social interactions and networking. | monitoring, alternative income generation activities, etc.<br>**Vertical relations**: community is guided and trained by forest staff. Government authorises terms of partnerships. Environmental committees vs. local encroachers, etc. | **Vertical relations:** top-down from government to community. Local people inquire at district levels and the district forwards inquiries to central government. Forest manager placed at district offices (from central government) increases hierarchy.<br>**Horizontal relations:** Relationships amongst stakeholder became less horizontal and less participatory than during PFM. | **Vertical relations:** stakeholders' communication, management hierarchy and financial hierarchy, community commissioned for local technical jobs.<br>**Horizontal relations:** forest campaigns, group activities, e.g. forest fires. |

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## 5.6 UNFOLDING EVIDENCE OF COMMUNITY LEARNING FROM CHANGED FOREST MANAGEMENT APPROACHES AND ENFORCEMENT

This section uses two interview narratives to discuss evidence of learning that emerged or failed to emerge from community experience in forest enforcement activities in Pugu and Kazimzumbwi. The two narratives were selected from interviews conducted in the first and second rounds of field interactions in sub-site II and III. The narrative from sub-site II gives a historical account of forest management enforcement, while the one from sub-site III focuses on particular events emerging over time. Thus, the presentation of narrative has minimised information overlap and repetition. Both narratives display local experience and individual encounters with learning in the changing forest management and enforcement practices. The section expands on the data presented in Table 5.1 and 5.2.

### 5.6.1 Experience in forest enforcement journey by Mr 2K1AM

Mr 2K1AM, from sub-site II, described his living experiences at PKFR, beginning in 1974, when he moved to Kisarawe village as a young man in his twenties. 2K1AM, who for convenience of reading will be referred to as Alem, was at the time of the interaction married and has a number of children. His opening statement in Box 5.1 reveals his awareness of secular changes in forest management practices at PKFR (English translation in section 5.6.1.1). Alem's interpretations of secular changes in forest management point towards government intentional actions to remedy the already existing degradation of forests.

*Box 5.1: Excerpt from Alem's interview during first round of interviews in sub-site II*

Mkoloni aliweka sheria za misitu na akazisimamia … kukawa hakuna haja ya kulinda misitu … Baada ya uhuru msitu ukawa chini ya serekali … ufatiliaji wa sheria ukalegea … wavamizi wa misitu wakiwamo hao maofisa wa misitu kutoka wilayani wakaanza kuvuna msitu kwa fujo. … Hao wavamizi hao, kutoka nje ya Kisarawe ndio walianza kuwatumia wanakijiji kuwasaidia ... kazi za kuvuna msitu … hivyo wanakijiji nao walipoona inawezekana wakaanza kuula msitu kwa matumizi yao … sanasana kuchoma mkaa. PFM iliingia vizuri sana! … kulima mkuza, … kutoa elimu ya mazingira, kamati zile za mazingira ... Wanakijiji wakaanza kuona Ahaa! Kumbe msitu ni mali yao!

*5.6.1.1 English translation of Mr Alem's interview account*

Mr Alem's quote in dialogue Box 5.1 narrates the following. In line (1) he claims that colonial rulers have administered forest laws in a manner that did not require regular surveillance on forests. In line (2) he describes that after independence, the takeover in political administration had neglected forest rules to the advantage of a few people who wanted to encroach upon the forests for personal benefits. Line (3) states that some of the government officials from the local municipality took advantage of the situation and joined the illegal forest activities. Line (4) describes how forest encroachers were coming from outside Kisarawe district and so had to engage local people to assist with the logging logistics as wage labourers. Line (5) explains that most villagers, through such engagements, saw the opportunity of doing their own logging, as a way of meeting economic needs, and so resorted to the charcoal business. In line (6) Alem expresses that he was amazed by the inception phase of the PFM approach. He praised the engagement of the community in re-mapping the forest boundaries and in creating village environmental committees and access to forest education. In line (7) Alem states that the initial processes of PFM changed local people's feelings over ownership of forest resources.

*5.6.1.2 Extended conversation with Mr Alem*

In the same interview with Alem, though not described in dialogue Box 5.1, he admitted to having once been a prominent encroacher himself. He was once involved in a wood carving business that required mature logs to produce finely finished products. He described his expertise in carving traditional mill grinders as pestle and mortar tools that are commonly used in rural Africa for milling cereals. He also used to produce traditional beehives, which require large mature logs that he obtained randomly from forest reserves. Alem recalledthat several of his colleagues survived in the village through illegal forest activities. He also claimed that most of these destructive activities virtually stopped after the introduction of PFM at the PKFR community. He linked this change to the increased understanding through forest education and proper guidance to sustainable utilisation of forest resources. He claimed that many of the loggers from village locations were persuaded to change to other livelihood activities. Several of the research participants that I met in my research inquiry told similar stories.

Alem was excited to mention one particular colleague, who stood out for his personal struggle for change in forest practice. This colleague was, according to Alem, difficult to persuade to leave the logging practices, despite PFM awareness initiatives. The colleague chose to reject the

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sustainable assumption proposed by the PFM projects and decided to maintain his traditional ways of harvesting trees from forest reserves. Being an Islamic religious community, some members of the Kisarawe community succeeded in convincing this colleague to convert to regular Muslim prayers. As a newly converted and good Muslim, the colleague's eyes slowly opened to the needs of changing logging practices by virtue of his Islamic faith. According to Alem, this particular colleague finally changed from illegal logging to launching a tree nursery for raising seedlings. He supplied seedlings to needy people in the community. Through his religion he became faithful to trees.

### 5.6.2    Experience on forest enforcement journey by Mr 3M2SD

An interview dialogue with Mr 3M2SD was conducted in the second round of interviews at sub-site III. The interview was accomplished in two short separate sittings. Mr 3M2SD will be referred to as Shadule for convenience. Shadule was a native of the Kisarawe district in Maguruwe village and had moved to live in Dar es Salaam in his youth. He moved back for resettlement to Maguruwe village in 1990. Shadule has a wife and five adult children.

*Box 5.2: Excerpt of Shadule's interview in the second round of interviews at sub-site III*

Part 1 of interview conversation:

**Interviewee:**      I am just coming from the farm, look! I still have mud… (Looked at his feet)

**Interviewer:**      Oh, is your farm far from here?

**Interviewee:**      It is a bit far, but today I didn't go to my farm. I went to help other people. I am working with Caritas and many people want to learn how to grow bananas from me… Caritas has trained us. I grow bananas in my farm like no one can imagine. I am done with cassava these days… I now grow bananas and many people come to learn from my farm.

**Interviewer:**      Mmh, Caritas, so you visit people's farms? What is this Caritas about?

**Interviewee:**      It is an organisation that enables us to plant teak trees in our farms. Have you seen the teak trees in the school garden (Figure 5.1)? I supervised the planting of all teak trees. Trees are in my blood!

Part 2 of interview conversation:

**Interviewer:** How do you see the trend of change in forest management?

**Interviewee:** The forest was good… after we mapped boundaries and demarcated the village land. We planted trees on our farms, there was no encroaching… no sand mining. Most of the encroachers are not natives of this village. It is very irritating that people from outside come to invade the forests!

Problems started after PFM was gone, government workers are bribed by encroachers, imagine! How come the guys that are paid salaries are yet corrupt and malicious!? They are involved in ripping up the forests. We are not paid anything and yet we are struggling to protect the forest. This is ridiculous really, sometimes I wish to know the justification of paying these guys salaries. I tell you… that Mr (name) in the district is the most corrupt person I have ever known.

The government is letting people stay in the forest. Actually, the government does not want to act… You don't expect the government to fail to remove people from the forest, do you? It is by choice… the government… could even use military force if it really wanted to remove those people. This is irritating! I want this forest to be given to us, so we take care of it. The government has let us down. Let them give the forest to us.

***Figure 5.1: Photograph of teak trees in Maguruwe Primary School in 2013***

In the first part of the interview conversation, Shadule was proud to share his experience and expertise of agricultural techniques facilitated by the organisation called Caritas Tanzania (see section 5.9.3 for further details). Shadule is a product of capacity building for sustainable agriculture, who has diversified from the traditional crop of cassava to planting bananas. He also shares his expertise and contributes by planting teak trees in public places, like schools, as he knows the value of planting teak trees for wood and commercial timber. In the second part of the interview, Shadule talks about community experience in and after PFM funded projects. He recalled some of the milestones of community achievements during PFM. He blamed the government for not taking forest issues seriously. He also blamed individual officials for colluding with forest encroachers from outside the Kisarawe community.

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## 5.7 LEARNING IMPLICATIONS FROM CHANGES IN FOREST APPROACH AND FOREST MANAGEMENT ENFORCEMENT PRACTICE

Table 5.1 summarises particular moments of change in forest approaches in Tanzania. There were numerous connections and linkages in the changes of forest practices. The events within changes of forest approaches were also associated with learning interventions that emerged along with changes in the four timelines. Kemmis et al. (2014) and Schatzki (2012) promoted the notion of spatial temporality in human sociality and thus in learning processes. They suggested, for instance, that every current learning event is driven by past experiences and is also held in place by future projections in life. The notion of spatial-temporal dimensions suggests that past learning experiences are influencing the present actions for learning, which stimulate the search for future learning opportunities (Kemmis et al., 2014; Schatzki, 2012). All previous learning processes as well as the anticipated processes come together in the present learning practice (ibid.). The learning events in Table 5.1 show local people's perspectives on learning as distributed in forest practice movements. This implies that forest practices are constitutive of interactive social activities, including social learning processes. The social interactions in forest practices generate what Schatzki (2012) termed *internal forcesof normativity,* and what Archer (1995) referred to as *power of agency* for learning.

### 5.7.1 Social learning spaces before PFM project

*5.7.1.1 Co-existence with forest rules*
Alem's conversation reflected certain levels of tacit knowledge by the local community in understanding forest practices. Tacit knowledge or practice knowledge was being built in the community since before the country's independence in 1961 (Wenger, McDermott & Snyder, 2002; Lave, 2009; Wenger, 2009; Kemmis & Mutton, 2012). Local people at PKFR had learnt to co-exist with forest ecologies while minding their obligations to stay away from forest resources. Local people at PKFR were, until the late 1990s, using tacit knowledge to care for forest reserves, and that care significantly contributed to forest conservation in the country. Regardless of the motives for caring and methods used by the community, the forest resources were conserved and protected. Kemmis and Mutton (2012) appraised the existence and significance of practice knowledge in communities as a source of learning for any other new knowledge. They

identified that practice knowledge forms settings for learning of new knowledge, once new assumptions are introduced for internalisation of new learning about the same practice (ibid.).

Wenger (1998) identified learning in communities of practices to demonstrate situated practice knowledge that communities use to manipulate their environment. The learning that occurs in communities of practice is locallybased and sociallyengaging in providing the culturally understandable settings for people to pursue the right contexts for learning (Wenger, 1998; Wenger et al., 2002). Lave (2009) acknowledged the socially-based community capabilities to create a base for tacit knowledge in learners communities. Lave regarded the ever-present learning process in socially-situated activities as a strategic capability to change the community's knowledge of practice whenever necessary (ibid.).

The 'do not touch' approach during colonial times was in the eyes of the community a perfect institutionalisation of forest management. The community adopted the assumption and carried it forward from generation to generation through passive transfer of heritage knowledge (Jackson, 2013). The local people held in high regard government's forest rules which they followed and obeyed. After years of seemingly mutual trust, the community had normalised the forest values by learning through non-participation in forest management and by obeying the restricted uses of forest resources.

### 5.7.1.2 Difficult moments in co-existing with forest rules

In 2000, when PFM projects were introduced to the community, people were already mindful of the emerged haphazard use of resources from the forest reserves, as shown in column one of Table 5.2. The community noted haphazard harvesting of forest during the end of the 1990s, as shown through tensions described in the first column of Table 5.2. This posed a challenge and tension among community members and between the community and government staff, as also indicated in line (3) and line (4) of Alem's interview account in section 5.6.1. The data shows that the community had seen some weakness in managing forest loggers under the don't-touch-rules. The community doubted the credibility of government staff in monitoring forest encroachments from loggers who came from outside the community.This experience was passed on in people's practice knowledge and stimulated tension and contradictions.

A few members of the community had also joined the logging practice through interactive exposure to it. Schatzki (2012) suggested that the logical unfolding of forest practices may

determine people's choices of actions and motivations for personal projects. He suggested that people usually engage in critical thinking and acting by using invisible 'mental' actions, which virtually underpin their intentions and reasoning (Schatzki, 2012, p. 2, original emphasis). Thus, through assisting in illegal logging some community members were motivated to adopt these logging practices, as explained in line (4) and line (5) of Alem's interview citation in section 5.6.1.1. This may also have happened through social learning processes in individuals' change of approaches and practices. The individual learners may also have spread the learning to other people and networks (Wenger, 1998). Unfortunately, learning happened in a direction that would not lead to a sustainable future of the forest reserves.

Adaptation of ill framed or inappropriate practices [from a sustainability perspective] is not uncommon in education and learning literature (Wenger, 1998; Glasser, 2007). Glasser (2007) describedhow natural it can seem to propagate maladaptation behaviours in societies due to either lack of understanding or through making the wrong choices. This was evident in the PKFR community, where no facilitation was mentioned for confronting inappropriate logging behaviour. Field facilitation may always be necessary to help people with the right decisions, since individuals may have limited capacities for reasoning on deeper causes and effects for natural events (Wals, 2007; Jackson, 2008; Muro & Jeffrey, 2008; Kemmis & Heikkinen, 2011; Cundill et al., 2014). In his description of passive processes of learning, Glasser (2007) defined maladaptation of behaviour as the transfer of ill-practices without social engagement, rational thinking and reflexivity. In the case of the PKFR community, according to Alem's account, maladaptation resulted from local people's engagement into illegal practices. People also reflected on economic hardships and rationalised the short-term gains of illegal logging activities. When clarifying maladaptation through passive learning, Glasser (2007) dis-engaged the probability of human to human communication, social interactions and feedbacks. However, what happened in the PKFR community was caused by human interactions and active engagement in ill-practices and was not a simple diffusion of learning ideas through passive news. Line (5) of Alem's interview does not sound passive, considering the long normalised tacit knowledge cherished by the community. Thus, it was possible in this study to observe maladaptation through active social learning dependent on contextual circumstances and the mechanisms at work.

*5.7.1.3 Reflections beyond the research timeframe*

Alem's interview account in section 5.6.1.1 reflects on colonial times when, according to him, forest management was well administered. Alem's colonial timeline was not directly part of our research timeframe of ≥ 2000-2015. However, his postulation of colonial style forest management from before independence (1961) made a valuable retrospective bridge between what was termed as ≥ 2000 in Table 5.1 and the so called 'colonial time'. The research acknowledges that the time marked as ≥ 2000 does not denote from the beginning of time, but rather from colonial management practices towards the development of a post-colonial nation, as also argued in section 2.5. The style of 'do not touch' management practices of colonial times was different from the post-colonial 'do not touch' management, as explained in line (2) of Alem's interview and as projected in people's tensions in Table 5.2. During post-colonial management, the 'do not touch' approach was weakly enforced, which allowed forest invasions and degradation. Ostrom (1990) in *Our common future* also suggested that mismanagement of resources by a centralised government management system signalled critical concerns, like what happened to the community of PKFR. The community reflected on, questioned, and validated the effectiveness of government systems in managing forest reserves. All strategies to cope with the confusion formed part of social learning, as described in section 3.3.5 and Table 3.6.

**5.7.2   Learning experience during PFM project activities**

*5.7.2.1 Initial response of community to the PFM agenda*

The data supports a high motivation and empowerment in the community from PFM project ideas. However, Alvesson (2011) suggested that interview accounts alone may not completely reveal people's true feelings and attitudes towards an entity, since some hidden motives may remain unobserved. Alvesson (2011) suggested that critical reflections on contextual circumstances may help to illuminate the possible conditions for motivation during events. A critical look at the context of interactions may also reveal something about possible reasons for a participant to narrate only part of a motivational story (ibid.).

Some explicit indicators for community learning through motivation are revealed in Alem's interview in line (6) and line (7) of his narrative in which he is amazed by the PFM starter pack. He described his affirmative remark on the PFM starter pack through interactive mapping of forest boundaries, village forest management areas, establishment of village environmental

committees, and spread of education. However, there could be many reasons for Alem's positive remarks on the PFM starter pack. One of the reasons could simply be to impress the interviewer (Alvesson, 2011). Another reason could be to underscore the questionable ending of PFM activities at the site, especially the failure to obtain consent for a joint management agreement, as shown in the third column of Table 5.2. In general, the people of the PKFR community showed trajectories of ups and downs in their opinions on both the PFM project and the REDD project, as presented across the four timelines in Table 5.2.

The initial adaptation of the Pugu and Kazimzumbwi community to PFM assumptions was undertaken in a smooth manner, since the community was desperately in need of PFM choices. For a community that was experiencing tensions of uncontrolled forest invasions, the PFM approaches promised solutions to their problems. The community believed PFM could reorient problematic practices into better practices for sustainability of forest resources and improved livelihoods. Thus, the community was passionately driven by the promising ideas of PFM to solve their troubling issues (Dirkx, 1998, 2000; Cranton, 2006a; Dirkx et al., 2006). Cranton (2006a) described a process of transforming human actions through imagination and intuition, which is expressed in the power of affection. Dirkx et al. (2006) described the transformative route that an individual may undertake by nurturing one's inner voice with less turbulence from the outer world. Dirkx et al. (2006) argued that this mode of transformative learning offers fewer complications in adapting to changes. The inception of PFM assumptions at Pugu and Kazimzumbwi seemed to arrive at the right time given the prevailing emotional needs of the community. Interview data shows that the people of the PKFR community listened to their inner voices expressing the urge to break free from past experiences of forest restrictions and the emerged invasions in the forests.

*5.7.2.2 Critical engagements in PFM activities*
Deep interpretation of line 6 and line 7 of Alem's account, in section 5.6.1.1, reveals the experience of people in forest mapping activities during the PFM intervention. A PFM interventionist approach for mapping of forest boundaries and other features of forest interests were signalled in both the interview data and the archival records. Involvement of the community in boundary mapping seemed to have opened multiple dimensions of learning. For example, in both Alem's (line 6) and Shadule's (dialogue box 5.2, part 2) interview accounts, the

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mapping of forests is significantly expressed. The 'Mkuza' metaphor in the second column of Table 5.2 was used in the community to refer to boundary mapping of forests in which the community was engaged in auditing resources around their respective forest areas. The process also included remarking of survey beacons, setting of Village Forest Management Areas, as well as developing forest management plans. The activities helped the community to master the details of resources in forest reserves. The mapping also cultivated a sense of ownership in community of the forest resources and the possibility of sharing management tasks with the government.

Belay (2012) acknowledged the role of metaphor building for rural communities to articulate understandings of the world around them. He observed this when working in collaborative mapping of bio-cultural diversity in Ethiopian rural communities. Belay (2012) drew on Tversky's (2002) observation of individuals' ability to develop relevant knowledge of physical features when mapping them. This process also helps the individual to form positive relations with the feature (Belay, 2012). Tversky (2000, 2002) advocated the power of involving communities to visualise features that matter for them and to map their spatial distribution. She argued that the process of visualising and mapping features stimulates memories, creates agency, builds meaning, and forms relations between the people and the mapped objects. Tversky (2000) also identified the visualisation and mapping process to create permanent mental signs, which empowers communities to pursue meaningful actions. The local people at PKFR were involved in reflecting on past forest boundaries surveyed by early German foresters in 1950s. They also reflected on a forest boundaries counter surveyed by the Ministry of Natural Resources and Tourism mandated for forestry in Tanzania. Remarking the boundaries of forest reserves at PKFR enabled local people to take inventories of resources falling under their village areas. Through the 'Mkuza' metaphor, community members were able to respond to the mapped features with more understanding. Local people had become intimate with local forest features and their knowledge of the features had increased (Belay, 2012).

Co-operating in participatory activities is fundamental in exploring learning by doing, while also learning through others in the community (Wenger, 1998; Wenger et al., 2002; Wals et al., 2007). Insights from interviews and from analysis of documents showed that local networks were occasionally extended for training of other community members (training of trainers). For

instance, the women environmental network (WAWAKI[12]) undertook advocacy campaigns for building of efficient wood energy for domestic use and eco-tourism. Membership to local networks, such as WAHIPUKA and WAWAKI, enabled local people to re-identify themselves regarding their social positions in the community. Wenger (1998) described a process of learning in which identities are reshaped when individuals value their contributions to the welfare of their communities. The teamwork practices in village environmental committees for both PFM committees and REDD committee was also often mentioned in interview responses. This shows that belonging to environmental committees was valuable to the individual committee members for learning but also for helping others in the community.

Kemmis and Heikkinen (2011) emphasised the important role played by peer mentoring in helping novices to master their fields of specialisations. They highlighted non-hierarchical peer mentoring, arguing that "It involves … activities, like facilitation and participation in discussions; and it involves distinctive roles aimed at building solidarities among participants rather than the hierarchies…" (p. 3). What happened in the PKFR community in terms of mentoring one another to cope with new PFM approaches resonates with Kemmis and Heikkinen's (2011) descriptions. The interview dialogue with Shadule, in Box 5.2, also describes a mentoring experience. Thus, this research identifies subtle changes of reorganised approaches or performances towards new forest practices, necessary for social learning processes. The evidence of change in practices indicative of social learning is made explicit when some reorganised approaches were persistently practised (Hargreaves, 2011).

Both Alem's and Shadule's accounts indicate evidence of improved forest conditions during PFM project implementations. A change in logging practices from community members was evident in Alem's account of ceasing wood carving practices, along with his colleagues. Shadule insisted that there was neither logging nor sand mining after community mapping of forest boundaries. The accounts of locals indicate that individuals had gradually changed their perspectives on doing things. The change process occurred through the use of language for thinking, communicating and metaphor formation about new assumptions and new relations (Hargreaves, 2011 Schatzki, 2012).

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[12] WAWAKI is an abbreviation of Kiswahili phrase 'Wanawake Wahifadhi Kisarawe', meaning women conservators of Kisarawe.

*5.7.2.3 Ending the PFM project-based interactions*

However, the last phase of PFM implementation in the community was not as inspirational to the community as the initial phase. For instance, the execution of forest enforcement practices was expected to lead to legal agreements for joint partnerships between village communities and the government. Yet, this was not achieved. Interview data showed that the community developed proposal drafts of Joint Management Agreements with guidance from government/project staff. The community claimed that the proposals were not approved by the prospective partner, i.e. the government, who stopped pursuing a partnership with the community.

This crisis of Joint Management Agreements marked the arbitration of community progression towards participation in forest management. The disruption was an unexpected setback to the community, as shown in the third column of Table 5.1. Schatzki (2012) suggested that the process of learning, as embedded in social practices, may suffer from unpredicted drawbacks, surprises and unexpected re-starts. He also added the process may undergo many complete dissolutions. He clarified possible causes that could impact social change and learning in ways that disrupt processes as external forces, such as natural calamities, government orders, or changes in political economy (ibid.). From a realist perspective, devastating interruptions to social processes are rooted in contingent relations, as described in section 3.3.1.4. The decision of the government to stop pursuing Joint Management Agreements for partnerships with the PKFR community was contingent to the project process (Sayer, 2000; Danermark et al., 2002). Social processes can be interrupted in unpredictable ways, which may frustrate social systems. Locating indicators of learning in social entities may, therefore, entail the understanding of the complexity of change dynamics.

### 5.7.3 Learning after PFM funding was exhausted

After the PFM project funding was exhausted, the government budget took over the PFM enforcement initiatives. The community claimed that they continued working on their PFM activities through contacts with government officials, particularly the forest manager. The third columns of Tables 5.1 and 5.2 shows that most of the PFM-supported activities, in which the community was engaged, dropped off. Insights from interview data highlight that the government had limited financial capacity for sustaining local activities. For instance, the active engagement of village forest committees in coordinating local campaigns was re-sized to reduce

active participation. The committees' role became obsolete, as there was no legal framework to justify their involvement in forest issues. The data indicated that the village forest committees nicknamed themselves "dog without teeth", meaning that the committees lacked legal power for action. The disempowerment of committees affected the entire community, because the forest committees were the unit of coordination for local enforcement activities. Some of the local enforcement activities that failed to continue working, as reported in an interview, included village forest patrols, arrests of suspects, fire control, and local campaigns. The third column of Table 5.2 showed that the community continued to follow-up on the fate of their Joint Management Agreement proposals through the district council. Up to the time of this research the community had not received favourable responses in terms of reviving partnership ideas with the government.

The community claimed to have witnessed re-invasions of loggers from outside the local community, as shown in Shadule's interview in Box 5.2. The community describedhow well-equipped the loggers were for confronting village forest committees. The loggers had harvesting permits from government authorities, which the village committees had no means of verifying. The interview with Shadule also reported that loggers are well armed for self-protection, but also for threatening village committees to avoid being arrested. These descriptions signal a feeling of powerlessness in the community. The Pugu and Kazimzumbwi village communities were well informed of the normalised practices of PFM in their villages, as they experienced working in village-based forest patrols. Kemmis et al. (2014) described such times as moments where a well-informed community may strategise practical solutions for ongoing problems. Kemmis et al. (2014) described the value of self-reflective questioning in stimulating needs for actions that can change situations. They termed the informed normalised practices as *praxis*. They also suggested ways of developing self-reflective questioning for problem-solving ideas such as "what should I do now/next?" (Kemmis et al., 2014, p. 26). Kemmis et al. (2014) defined praxis from two perspectives as follows:

> First … might be understood as "action that is *morally-committed, and oriented and informed by traditions in a field"*… that is, action that aims for the good of those involved and for the good for humankind. A second view of praxis, … praxis as 'history-making action', that is, as action with moral, social and political consequences  - good or bad - for those involved in and affected by it. (Kemmis et al., 2014, p. 26, original emphasis)

### 5.7.4   Learning experience during the REDD project

The REDD project entered the PKFR community by building on PFM praxis. The experience of people in the community was influenced by the PFM praxis, which was funded by external donors. The community was also influenced by the experience of transiting donor funded PFM practices to mainstreaming PFM in government management. The landing of REDD in the community was informed by people's consciousness of PFM transitions. Thus, the learning regime in the REDD project was dominated by praxis-practice nexus of informed consciousness and actions of the local community. The local community looked at REDD as a support system for addressing practical issues that troubled forest management in their village areas. For instance, they wanted to address the issue of institutional arrangements for governing forests in the district (section 6.3.1).

Lather (1986a) described praxis action from the point of social science research to embrace a change-driving agenda for the society. She described the features of research praxis as including participatory interactions that involve the research participant in co-construction of knowledge in the research process. She identified the research praxis as emancipatory. In the context of human action, praxis would reflect conscious movements that seek to propagate a transformative agenda. Such actions occur in organised and well-informed groups of people aiming to address issues of human empowerment, social justice and emancipation. The route to emancipation could involve forums for co-construction of knowledge, shared-understanding of issues and reframing of ideas to suit relevant situations (ibid.).

During the inception of the REDD project at the PKFR community, the social-cultural conditions and local micro-politics in terms of awareness of the participatory projects were grounded in informed praxis. The community believed the REDD project could resolve outstanding issues of PFM project and saw this as an opportunity for progressing practical actions (fourth column of Table 5.1). As indicated in the quote of section 6.3.1, the community sought a forum of common understanding in conveying common forest actions through different levels of government authority. The analysis highlighted the complications of locating indicators for social learning and transformative learning in circumstances where learning seems to occur through praxis actions and motives. The learning interaction through peoples' engagement in both praxis

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motives while engaging in REDD practices would likely have reinforced the achievement of objectives if the interaction was properly nurtured. These were the moments when learning feedback could either enable or constrain progression of learning processes by multiple factors (Kemmis et al., 2014)

## 5.8    CHANGES IN FOREST MANAGEMENT INCENTIVE SCHEME PRACTICES AND THE LEARNING IMPLICATIONS TO THE COMMUNITY

As described in section 2.7 and section 4.4.1.4, incentive scheme ideas were integrated in forest conservation and livelihood development. The idea of combining the methods was aimed at optimising sustainable forest management by compensating the community's economic needs (which were forest-based) with alternative sources of income generation. Thus, forest management incentive scheme practices were commonly termed alternative Income Generating Activities (IGAs). This section attempts to identify IGA interventions in the PKFR community as local incentives of forest management. The research traced the trend of IGA schemes in a chronology of changes of forest management (Table 5.2) and mapped the IGA trend in Table 5.3. IGAs were observed in interview data and the IGA events were inductively mapped against the indicators of learning, as shown in Table 5.3. The trend of Forest Management Incentive Schemes Practices was also simulated in section 5.4, to indicate relative divergences in specific timing of IGA schemes across the four threads of timelines.

## 5.9    LEARNING IMPLICATIONS FROM INCOME GENERATING ACTIVITIES

Table 5.4 shows that the trend of change in forest management incentive schemes did not precisely follow changes in forest management enforcement practices, since most incentive schemes were not necessarily linked to PFM or REDD projects. Other agencies, less affiliated to PFM and REDD projects, also organised income generating activity schemes in the Pugu and Kazimzumbwi community. Table 5.4 shows that IGA schemes in the Pugu and Kazimzumbwi community overlap with particular timelines of forest enforcement.

### 5.9.1    Coastal Forest Education Project (1995-2000) and Misitu Yetu Project (2000-2005)

The Pugu and Kazimzumbwi community was engaged in educational-based IGA initiatives, facilitated by a project named Coastal Forest Education Project (1995 to 1998) in collaboration

with Misitu Yetu project (2000-2005) (see footnote 3). The Coastal Forest Education Projects were merged into Misitu Yetu project in 1999. The Misitu Yetu project exclusively promoted forest livelihood economies through IGAs and local saving and credit schemes in rural communities (see section 1.3.4). Work reports from the project indicated that the project was designed to implement Income Generating Activities under the Joint Forest Management framework. The aim of the project was to progress Conservation Education in the community, while improving sustenance of local forest resources by introducing alternative non-timber Income Generating Activities. The analysis of documents and archival records, in item one to item six of Table 4.6, indicated the project's aim to promote income through eco-tourism activities and other practices shown in the table. Interview data showed that the community's vision and imaginations for a better life was enhanced after learning about eco-tourism opportunities. Data from analysis of documents in item nine in Table 4.6 also signalled the visions of the community by showing the community's plans to extend levies to researchers and recreational visitors. Some of the Misitu Yetu project activities and learning interventions are shown in item seven to item nine of Table 4.6. Information about collaborative running of the two projects was provided in section 1.3.4.

*Table 5.3: Chronology of trends in Forest Management Incentive Schemes Practices and the learning implications for the community*

| Learning indicators | Up to 2000 | 2000-2005 | 2005-2010 | 2010-2015 |
|---|---|---|---|---|
| **Shifts in understanding** | Local understanding of economic values of forests and how the values can be put to sustainable use. Knowledge of ecology and the economical dangers of the prevailingmalpractices in the forests. Knowledge of variability in local valuables, e.g. rainfall, plant species of medicinal values, and wild animals that existed in the past. Introduced alternative crops (vegetables and fruits) to supplement agricultural produce for food and domestic cash from cassava. Planting of timber trees was also intended to supplement food and cash crops. Traditional fund revolving schemes, *Upatu*),[13] | Progressive shifts from traditional skills to modern activities, e.g. rearing of hybrid chicken for both eggs and meat. The chickens were growing faster than country chickens and were easy to market. The community used chickens as source of protein and as source of income. Crossing a high breed chicken with pure breed country chicken resulted in a cross breed, which was relatively bigger and more stable in breeding than the high breed. Cow project for milk was traditionally restricted, but introduced in community with little success. | Understanding how to sustain activities of the projects, e.g. the Village Community Banks, without external matching funds or financial support. Praxis knowledge for Income Generating Activities existed, but most of the IGA driven projects had ceased to function. Due to financial uncertainties, engagement in Village Community Banks increased and most banks were sustained, e.g. the Village Community Bank at Kisanga and Kisarawe villages. The community's local economy diversified and people reported on the benefits of a revolving | Community knowledge of income generating schemes, e.g. community banks. Introduced knowledge of carbon trading through natural regenerations of trees and tree planting. Expanded knowledge on non-timber forest values and how to harness them. Training on entrepreneurship skills from a university institution changed people's attitudes to micro-projects. Community was looking forward to engaging with carbon trade and well-managed |

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[13] 'Upatu' is a Kiswahili name commonly used in Pwani region of Tanzania to mean traditional fund revolving schemes, where women make regular savings in small group for rotational crediting.

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| | gradually transformed into skill-managed village community banks. False belief in cattle. Traditional myth that cows may cause miscarriages in pregnant women. | Access to agricultural extension workers was improved plus training on other forest-related Income Generation Activities. Improved saving and credit association/revolving fund scheme, with active participation in Community Conservation Banks and later Village Community Bank. | scheme for income, but not as an alternative to forest income. Sand mining at Vigama sub-village of Kisarawe was reported as an alternative source of income from forest dependence. Other IGAs were introduced to PKFR by other NGOs, e.g. the Caritas and Plan International. | micro-projects, while expecting to receive financial capital from REDD project. The community also complained that big amounts of money were used to commission universities, while they received university certificates, which were 'good for nothing'. |
| **Engagement** | Engagement of community in traditionally acceptable income activities was, especially for women, passive and individualistic. People were mostly involved in traditional skills, e.g. local scale agriculture, traditional crafts making, carpentry, traditional beekeeping, woodcarving for grinder mills, also individualistic and common to men. Women could passively engage in traditional *upatu* | Active engagement in training for eco-tourism, training on credit and revolving schemes and active participation in income activities. Local handcrafts organised in groups, e.g. the Zamalon group, for weaving of mats, baskets, hats, decorations and clay pots improved for the envisaged touristic markets. Groups for vegetables gardening and markets, e.g. cabbage, tomatoes, green peppers, | Most of Income Generating Activities initiated in PFM projects ceased to operate in organised group activities, e.g. crafts groups, eco-tourism, bee-keeping, gardening. As the physical practices ceased, individuals engaged emotional reflections on the skills that were now not utilised. Reduced activities in school nurseries and the termination of a national (public) tree nursery at | Community engaged in preliminary meetings to start the REDD project and some local leaders are involved in consultative meetings. Community engaged in training and in measuring carbon sinks by a consultant firm from the University of Agriculture. Community is also engaged in establishment and keeping of nurseries for |

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| | for group savings and revolving funds, weaving of traditional mats, selling diverse homemade snacks, e.g. fat cakes, cassava and rice snacks. Individuals could learn from other individuals by consulting on specific traditional skills or products, e.g. herbal knowledge, hairdressing, midwifery. | okra, fruits, honey, beeswax. Engaged in creating nature trails for eco-tourism, bird-watching, and surveying of sacred places, e.g. the bat caves and Minaki dam. The community worked to raise funds for construction of primary schools at Maguruwe and Kisanga village. | Kisarawe. The Village Community Banks continued to function in most villages, e.g. Maguruwe, Kisarawe and Kisanga villages. Most female members of the community were engaged in Village Community Banking. | trees. Planting of trees in reserve land and in other public lands and private farms. Community also performed skilled activities, e.g. masonry for carpentry and construction of surveillance posts, signposts, clearing of boundaries, and vigilance of tree nurseries. |
| **Tensions** | Community lived traditional lifestylesand were very vulnerable to natural disasters and setbacks. The traditional economy of the community was by Tanzanian standards poor. Seeing other people reaping money from illegal forest activities, left others socially and economically frustrated. Local people started questioning the rationale for their economic poverty while outsiders benefited from the resources of their | Tension in the community on how alternative incomes could be generated, high enough to become independent of forest resources.<br><br>Survey and assurance of markets for IGA produce. The risks of letting go of routinised traditions on forest activities. Charcoal production is quicker and more economically viable than many of the IGAs. | Rise and fall of micro-projects, e.g. the poultry projects never worked well, the cow project never gave enough milk and some projects ended due to poor management. Forest encroachments from locals increased. Tensions between generations e.g. some young folk blamed parents for contributing resources to community, e.g. some individuals contributed plots of land from their personal | Increased community enthusiasm for income. Scepticism on financial reality also mounted. People who were trained in entrepreneurship expected initial capital from REDD. Local people were curious about the project's budget and financial flow of implementing NGOs. People wished the government could |

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|---|---|---|---|
| | home lands. | | properties to establish a village forest reserve at Kisanga village. | monitor NGO work and financial management in cases where donor funds were handled by NGOs. |
| **Motivation and empowerment** | Some members of the community were motivated to remain loyal to the government, regardless of their low economic capacities, believing in a just and fair government. Other members of the community rebelled against government rules and joined the illegal logging practices so that they could make money quickly. | Improved and modernised income sources, e.g. eco-tourism, modern beekeeping. Expectations of better markets from technical support offered in terms of trainings and initial capital. Empowered by matching funds in revolving schemes that ploughed back to their livelihoods. People were motivated to belong to and work in identity groups. | Most people, especially women, acknowledged village community backing. Motivated to start small individual projects to cope with payment of loans and raising individual shares. People are motivated by the financial boost they get from dividends. It motivated them to work harder and contribute to families' income, e.g. children education. | Improved working facilities, e.g. field uniforms and shoes, fire-extinguishing equipment. Payment for allowances supported individual economy and increased expectation for improved livelihoods. Also expectation of sharing benefits of forest resources with government through legal joint agreements. |
| **Shifts in economic practices** | **Non-bodily** motives for planting trees on private farms. Obeying and trusting the government for economic security. **Bodily doings** by keeping distance from forest resources and watching out | **Non-bodily** motives for income generation and expectations for economic well-being in future. **Bodily doings** include training and understanding rules and guidelines for IGAs, engage in organised | **Non-bodily** doings in critical thinking due to economic uncertainty and discontinuity of IGA support from PFM project. **Bodily doings** by engaging in new IGAs through other NGOs after PFM phase is | **Non-bodily** expectations of better economic future with scepticism regarding facilitations. The support from the REDD project is interpreted by elder (retired) members |

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| | | | |
|---|---|---|---|
| for others. Harvesting trees from private farms for domestic charcoal and for cash economy.<br>**Sayings** that transpired based on seeing the forest as government property<br>**Vertical relations** made by top-down economic orders from government officials to local people, e.g. agricultural capacities, markets for local produce, transport and communication.<br>**Horizontal relations** when heritage knowledge of economy is passed from individual to individual, e.g. when passed among colleagues and extended to networks or social groups. | groups for various activities.<br>**Sayings** such as village banks, eco-tourism, and IGAs became metaphoric words.<br>**Vertical relations** when a more knowledgeable person facilitated group works, e.g. in savings groups and skill-based activities. Communication channels for IGA issues from community to project facilitators either direct or through district authorities.<br>**Horizontal relations** in lateral collaborations, group activities, e.g. working processes in saving groups, farming, poultry and other local/village initiatives. | finished. Well informed by PFM experience.<br>**Sayings** about 'projects' increased as people struggled to venture from one project to another project.<br>**Vertical relations** were formed between village communities and project teams, extension experts, local leaderships, etc. Especially when mobilising people for new project ideas.<br>**Horizontal relations** when community groups work in solving common economic issues, e.g. when donor support of economic promises were not met. Community looked for alternative sources. Extension services were used. | of the community as more beneficial than the support they had from PFM during their times.<br>**Bodily doings** in studying the REDD project and practising REDD-related activities. Also in active reflections of past IGA experiences for the promised entrepreneurships by the REDD project.<br>**Sayings** of financial benefits, carbon trade reality, actual payments to local people, sustainability of projects, transparency, carbon business, etc. |

### 5.9.2    Plan International in Tanzania

The research notes other IGA interventions at the PKFR community that were facilitated by Plan International and Caritas Tanzania. Plan International, still active in the Kisarawe district by 2014, is focused on supporting children's education, child security, and sanitation (Plan-International, 2013). Plan International has also built community capacity for income generation as well as promotion of Village Savings and Loan Associations in the district. Community learning was based on social welfare e.g. facilitating sponsorship of girls' education, water harvesting projects in schools and in communities and proper sanitation facilities in schools including sanitary behaviour.

*Table 5.4: Rough timelines of IGA projects at the PKFR community during the research timeframe*

| Up to 2000 | 2000-2005 | 2005-2010 | 2010-2015 |
|---|---|---|---|
| COFET | JFM | | |
| | PLAN | | |
| | MISITU YETU | | |
| | | CARITAS | |
| | | | REDD |

### 5.9.3    Caritas and the Organization for Food production and Marketing

Caritas Tanzania under the Organization for Food production and Marketing (OFM) programme worked in the Kisarawe district until 2010. The memory of the project was still with the villagers, especially at Maguruwe village. The Organization for Food production and Market programme approach spearheaded the planting of teak trees through local cooperative groups. The aim of the trees was to complement community income from subsistence farming.   The organisation encouraged the formation of village cooperative groups to enhance livelihood networks and promote

collaborative strategies against poverty-driven problems. Another prominent feature of the organisation was the grooming of mentorship among community members so that people could learn from one another. For instance, Mr Shadule's interview dialogue in Box 5.2 shows his experience of mentoring other farmers.

### 5.9.4   A general overview of community learning from IGAs

Sunderland, Harrison and Ndoye (2004) noted that Income Generating Activities (IGAs) were initiated in most developing countries in the 1900s. The initiation of IGAs in developing countries was linked to actions for controlling haphazard logging in rural communities. The impression was that the long-term value added to alternative IGAs would override the short-term benefits of harvesting forests for timber, charcoal, building poles, etcetera (ibid.). In a broader sense, the international conservation community was promoting local initiatives for instituting forest-based income generating schemes in developing countries (FAO, 2014).  Such initiatives included capacity building in entrepreneurship for income-generating enterprises and in regulating management practices in trees and forest resources (ibid.).

The income-generating schemes of the PKFR community promoted the learning of IGAs skills, as emerged from the interview accounts in Box 5.2 and Box 5.3. Local people engaged in group activities to learn the introduced practices and acquire skills for working in collective activities. Groups met regularly to facilitate formalised interventions through which more knowledgeable individuals helped them to understand the skills (Wenger, 1998; Kemmis & Heikkinen, 2011; Kemmis & Mutton, 2012). Kemmis and Heikkinen (2011) and Cundill et al. (2014) identified the role of knowledge facilitation to include building agency of group members for practical adaptation to new practices. Kemmis and Heikkinen (2011) recommended the facilitating roles of more knowledgeable individuals to help others understand new practices through the distribution of different parts of knowledge.

In 2010, CARE international produced a toolkit for a Community-Based Adaptation programme in Africa that explicitly target livelihood supports in climate change vulnerable communities (CARE, 2010).  "We are adopting a 'learning by doing' approach – this first version will be tested and refined over time as we build further knowledge in CBA [community based adaptation] and learn from the experience of others" (CARE, 2010, original emphasis). Wenger (1998) discussed the process of

learning in communities of practice, which involves creating sites of social participation. Through interactive actions, the IGA learning spaces implicitly served as sites of social participation for communities. Wenger (1998) described participation as an active process of participating in a practice and building identity through that participation. Thus, the IGA practices formed the context in which learning in communities of practice was likely to occur (ibid.). Most IGA interactions in the PKFR community were structured in participatory community groups, e.g. the women network group in the Coastal Forest Education Project, and the savings and credit schemes groups by the Misitu Yetu project. The Organization for Food production and Marketing programme also promoted formation of local cooperative groups.

## 5.10    UNFOLDING EVIDENCE OF COMMUNITY LEARNING FROM CHANGES IN INCENTIVE SCHEMES

### 5.10.1  Learning experience from forest incentive schemes of two participants

This section will use the IGA insights from two interview accounts (presented in Boxes 5.3 and 5.4) to develop the narrative stories of two women who shared their critical moments in forest management incentive schemes. One participant from Maguruwe village of sub-site III (Ms 3M1ML) described her experience with different modes of engagement in IGAs. This narration of general IGA perspectives and IGA interactions in rural communities helped to understand how IGA mechanisms work in terms of community learning. Many of the IGA stories that emerged from the interview data described the same areas of learning experiences. A second narration, from a participant in Kisanga village of sub-site III (Ms 3K1AM), revealed the economic power relationships that develop in local communities based on forestry social-cultural variations, beliefs, and attitudes. Such economy-oriented power relations in communities may over time influence individual's economic behaviours to 'market place' cultures as discussed in section 5.10.6.

The research drew on the stories to demonstrate opportunities of social learning and social change from IGA experiences in the Pugu and Kazimzumbwi community. Learning spaces were primarily explored through the unfolding of learning indicators as individuals practised the IGA activities. These included social learning through engagement in savings and credit schemes and other income related activities.

Secondly, the research explored possibilities for IGA learning to stimulate change in forest management practices. It critically reflected on the impact of IGA learning for building agency for change in forest management approaches.

## 5.10.2 Learning experience on IGAs by 3M1ML

One participant, Ms 3M1ML, who was in her sixties, was born in another village in the Kisarawe district and moved to Maguruwe village with her family in 1990. She took pride in describing her late father's commitment to the conservation of the forest reserves for as long as she could remember. There was no mention of a husband or partner, but I noted a grandchild returning from school during the interview, signalling the existence of at least an adult child. Ms 3M1ML will be referred to as Magilu for convenience. The interaction with Magilu occurred in a formal sitting in the first round of interviews in sub-site III. This section presents a part of her interview that shows her engagement in incentive scheme activities in Maguruwe village. Due to the length of the interview inset, it will be presented in two parts, 5.3A and 5.3B.

***Box 5.3A: First part of Magilu's interview dialogue in first round of interviews at sub-site III***

1. **Interviewer:** Now, tell me about the alternative Income Generation Activities.

**Interviewee**: Yeah, yeah, in the saving groups, there is one group that added a name 'Chicken' in their saving group as a new group member (laugh!). You see chicken was made a member and the group continued to raise savings for the group … After the chicken share was grown enough, they debited the chicken share in order to start a poultry project … (laugh!)

The veterinary officer advised them to start with cocks because hens are expensive to feed. The veterinary officer came to see me and helped me to budget for a poultry project of my own, since I did not belong to that saving group. The veterinary officer is my friend. I already had the chicken coop … I therefore started the chicken project two weeks ahead of the group. … They came to learn from my chicken. I started with forty cocks … (laugh!) ... I then sold them all. One time I secured a market for twenty-five chicken. I left only two cocks for cross breeding with my local chicken. Now I have seven cocks from the crossing. I want to sell them.

The veterinary officer tells me to buy more cocks … but I already moved to another project … selling mealie flour … (big laugh!) … I have a young one who keeps the shop. I realised there is market in mealie flour … (laugh!) … I mean I am running a small shop for selling items like mealie flour, sugar, salt and so on.

One man from the saving group (the chicken saving group) … is now very successful with cocks. He cross-bred the cocks and now he has many hybrids … He originally had many local chickens and allowed them to mingle with the project cocks. He now has lots … lots! … The hybrids look just like their fathers! I now wish I could try again (laugh!) Yes! I want to try again.

2. **Interviewer:** (encouraging more talk) Mmh … the cocks, very interesting …

**Interviewee:** Before thinking of the cock project, last-last year, we were organised in cooperative groups by 'Tandem'. They told us to prepare chicken coops ready for receiving project chickens. Almost everyone in the village built a chicken coop expecting Tandem chickens. You know what happened? In this village (Maguruwe) only three people, including me, were lucky enough to get the chicken! In the beginning they (Tandem) promised nine chickens and one cock for each household but we got three chickens and one cock. What happened is that the chicken did not know how to hatch eggs; they only laid eggs without hatching.

I tricked my local chicken to hatch the eggs from the project chickens. The chicks … copied from their mothers, they too could not hatch … the project is now finished, no more chickens. My chicken hut is now empty… You see … having an empty chicken hut (laugh!) … That's how I grabbed the cock project, because of the empty hut.

*Box 5.3B: Second part of Magilu's interview dialogue in the first round of interview at sub-site III*

3    **Interviewer**: And what about VICOBA? (Village Community Banks)

**Interviewee:** Uhm, those were organised by Plan. First, Plan came with a project for food security, but that project did not work ... unfortunately, it was during the drought year and nothing could grow in Maguruwe. They distributed seeds but … in 2000 Maguruwe had a terrible drought. This was not successful and so they changed projects and brought us savings groups.

These are share collection groups; they were adopted from Mwanza region for us to copy the process. We purchased our shares by contributing to the group savings. … Total number of members ranged from fifteen to thirty. There is

always a contribution to small social funds like education and social welfare …
We set our own value of shares and the maximum shares for purchase. When
we started, the value of shares was set at five hundred (Tanzania shillings), that
was 2004, and now the shares have grown to one thousand (Tanzania shillings).
And the maximum of purchase for people capable of big money is five shares
… others can purchase one or two ... At the end of the year we split dividends
among group members.

**4    Interviewer:** And … about the forest conditions?

**Interviewee:** Oh, when I moved in to live in this village, it was surrounded by
thick forest. My father used to tell me about forest reserves and that the forest is
the government forest … and that we are not allowed to go there. Why would
we go there anyway, it was scary, there were wild animals and it wasn't user-
friendly. Moreover there was plenty of farmland for everyone … land was
obtained cheaply. Everyone could make charcoal from trees in his/her own farm
… no need to go into the forests. At night … I remember the smoke coming
from that hill over there … it was ritual smoking … performed by the clan of
the Chief of this area. The clan name is 'Yamba'.

### 5.10.3  Learning experience in social-economic diversity from Ms. 3K1AM

Another woman named 3K1AM was interviewed in the first round of interviews in
Kisanga village, as explained in section 5.10.1. She was a native of Kisanga and had
an adult son who was working in Dar es Salaam. She will be referred to as Shose. The
entire interview with Shose (of which only a section is displayed here) touched all
areas of forest management and social-political issues related to forest resources. The
section of interaction displayed in Box 5.4 described the impact of the social-cultural
influence on economic power relations, as explained in section 5.10.1. Shose was a
friendly character and an outspoken woman of around fifty years of age.

*Box 5.4: Interview dialogue with Shose in the first round of interviews at Kisanga
        village*

**Interviewer**: So how do you differentiate the charcoal kilns made by outsiders
from those of local residents?

**1.   Interviewee:** (very charmingly) local loggers? ... (laugh) … they make
small kilns of charcoal because they don't have big capital, but outsiders have
big money, they invest big capital. Outsiders are financially capable, that's why
they even bribe government officials … (laugh!). During forest patrols we

easily identify the two kilns by their sizes. We call larger kilns 'Msonge[14]' and small kilns 'Dogoli[15]' … (both interviewer and interviewee laugh). The outsiders use big trucks to transport charcoal … No villager can afford to enter the forest by truck!

2. **Interviewee:** (suddenly asks the interviewer) Have you ever met the real giant men? ("We unaijua mijitu ya miraba mnne wewe?").

**Interviewer:** (in a friendly way) Oh, umh, I think … I know them.

3. **Interviewee:** Those are the people you find there in the forest; they are Kurias; can you confront them? (Hiyo ndiyo imejaa huko Msituni; Mikuria unaijua?" … "Utaiweza wewe?")

4. **Interviewee:** … We are in trouble, they have turned Kola sub-village into a place of infidelity. They have introduced beers; there are beer grocers in the village! … And they take people's wives! Terrible!!

## 5.10.4 Specific IGA learning experience in the Pugu and Kazimzumbwi community

Magilu's interview account describes the Tanzania Development Mates Trust (Tandem Trust) project that facilitated chicken farming in the community. Magilu is a soft speaking lady with a beautiful gentle smile. She explained in her answer to question two that the village was inspired to build chicken coops after having been mobilised by the Tandem project. However, only three households were presented with chickens, despite the community inspiration for the poultry project. This research notes the occurrence of inspirational learning at Maguruwe village community at the initial stages of the Tandem chicken project (Cundill et al., 2014). The village community was inspired to use their valued resources to fabricate chicken coops. Cundill et al. (2014) identified multiple domains of social learning occurring when local capabilities are mobilised. For instance, through building of the chicken coops, individuals at PKFR could have learnt through inspiration and engagement. They could also have learnt through change in understanding and shifts in practices.

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[14] 'Msonge' is a Kiswahili word, which symbolises a tall tower-like fabrication.

[15] 'Dogoli' is a word from a local language of the Zaramo tribe, symbolising one of Zaramo's traditional dances.

Many of the villagers were not offered project chickens due to inadequate facilitation by Tandem. The disappointment in losing opportunities for project chickens could also have contributed to initiatives to start a chicken savings group, explained in the first answer of Magilu's interview account. Magilu affirmed this in her last sentence in answer to the second question, where she indicated that having an empty chicken coop inspired her to utilise the cock project ideas from a veterinary officer. In summary, learning processes in Magilu's story could be traced in stages of inspiration, disappointment, and empowerment (Schatzki, 2012). When Schatzki (2012) described unpredictable changes in practice development, he also claimed that practice set-backs might also stimulate new innovations.

The failure of chickens to hatch was another form of disempowerment for the community. Rural communities are often not keen on eggs since they prefer chickens for meat and market. Eggs in most rural areas are regarded simply as snacks or healthy supplements. Thus, the layers' project looked less viable for marketing poultry in rural communities, since eggs would sell better in big towns than in villages. Sunderland and Ndoye (2004) also identified limitations for rural people to access external markets in big towns and cities. The cock project, discussed in the first answer of Magilu's interview account, served for fertilising the country chicken and so propagating hybrid chickens. Data from interviews indicate that hybrid cocks are better as domestic meat and for cash sales.

Magilu's interview account expressed different levels of learning through change in understanding. For instance, changes in understanding occurred when people organised their own savings to start a chicken project. Answer three of Magilu's interview signalled significant changes in understanding through engagement of people in savings groups. The savings and credits schemes were successful as IGAs, judging from the group that initiated chicken savings. Albee (1994) reported on some initiatives that supported rural women in IGA activities and she noted that credit schemes perform better than other kinds of IGA in third world countries. Karim (2008) examined the effectiveness of alternative IGAs for forest conservation in Bangladesh. He also identified small trading IGAs as performing relatively better than IGA types that are based on cow fattening, poultry, fish or nurseries. In fact, Karim (2008) noted the poultry IGA performed poorly in all the IGAs he researched in

Bangladesh. He noted that the poultry projects are constrained by various local factors, including chicken diseases.

### 5.10.5 Reflective impacts of IGA learning on forest management practices

This research observed the impact of IGA learning on Forest Management Enforcement Practices at the PKFR community. Research participants, for instance, Magilu moved from one income-based project to another without necessarily focusing on forest management. Her attitude of changing from a cock project to a retail shop affirmed her focus on income generating. She changed to a retail shop business when she discovered there were more financial benefits to selling mealie flour. Magilu is a good example of indoctrination of a market-place mindset. The poultry project could aim to provide a sustainable market for local meat as well as provide a domestic source of protein. The same project could also aim to propagate farming skills by providing manure to subsistence farmers or supporting fish farming. However, Magilu did not stick to farming perspectives. Magilu's success story reflects the skills she developed in running a small business and demonstrated her skills in identifying markets based on profit making.

This research did not intend to influence any conclusions from personal prejudice and attitudes. Albee (1994) observed that metaphors of promoting financial security to rural communities were fuelling a money-minded agency, contrary to the intended sustainability desires. The metaphoric term of 'income generating' was identified by Albee (1994) to orient people's perceptions towards change for market-minded incomes rather than conservation. The tendency to money-mindedness was escalated by non-affirmative policies in describing forest-related income strategies (United Republic of Tanzania, 2006), which poses challenges in facilitation. Cundill et al. (2014) described the challenges of facilitating change in systemic communities where the divergence between sustainability objectives and actual changes may grow. Weakness in local facilitation of project activities may contribute to allowing changes to occur in the direction of money-mindedness contrary to expectation (Hart, 2004). One of the identified challenges in managing change-oriented projects in sustainability contexts is the lack of certainty in managing change stimulants (Wenger, 1998; Wals et al., 2009; Cundill et al., 2014). Jickling (2013), like Cundill

et al. (2014), advised sustainability facilitators to remain vigilant in guiding learning processes, since the results of changes are uncertain.

Sunderland et al. (2004) shared their views on the need for a thorough understanding of critically interlinked, transdisciplinary and multidisciplinary factors that govern the entire value chain in the promotion of IGAs. They stated that:

> ... this can only be undertaken with the full knowledge of a range of interlinked issues and requiring a multidisciplinary approach which incorporates social, economic, cultural, ecological and policy context, so often missing in integrated conservation and development projects … To date, and despite massive investment in the NTFP sector, a number of basic conceptual issues remain unresolved in order to better position the NTFPs within conservation and development strategies. (Sunderland et al., 2004, p.2)

Sunderland et al. (2004) supported Dove and other scholars who have criticised the notion of linking rural poverty to deforestation factors. Sunderland et al. (2004) did not observe a direct relationship between income generation and forest management practices. Rahman, Rahman, Hassan and Islam(2012) assessed the potential of alternative Income Generating Activities for a fisheries community in Bangladesh. The results of their study indicated that fisher folks regard IGAs as an additional source of income and not as an alternative to traditional fishing activities. Rahman et al. (2012) identified multiple contextual factors that constrain the capacity of alternative IGAs to replace traditional fishing practices in Bangladesh. Some of the factors were poverty-linked and so reinforced causal-effect for social inability to sustain IGA projects.

Challenges of using economic well-being for sustainability learning are not uncommon, as expressed when Webster and Vare (2012) advocateda circular economy for sustainability learning. Some possible shortcomings of a circular economy are identified to include possibilities of economic and social inequalities among community groups. Webster and Vare (2012) also mentioned possibilities of turning the circular economy approach to market-minded practices. They considered this likely to occur when social limitations are not properly taken into consideration during the planning and implementation of circular economy (Webster & Vare, 2012): "Attending to resource flows will be of little consequence to most of humanity

if we don't *simultaneously* address issues of access and equity" (p. 404, original emphasis). The complications of addressing economic productions in poor communities and the failure to achieve sustainability objectives is occasionally exemplified by the green revolution crises (Webster & Vare, 2012; Jackson, 2008, 2013). Notwithstanding the concerns for social-economic inequality, Magilu's change in understanding and the shifts in her income-based performance emerged from social learning (Wenger, 1998).

### 5.10.6  Preoccupation with 'market place' culture

Selby (2010) observed a global trend in which humans are preoccupied with promoting and protecting the concept of monetary-based learning. The impression that Selby (2010) had of monetary-based learning was that people tend to build capacities for market competition, rather than sustainability concerns. The sense of market competition has highly intoxicated individual's minds to form what he called a 'market place' culture (ibid.). Selby (2010) critically discussed the rationality of the predominant use of market-oriented metaphors in pursuing a sustainability agenda. He believed in the power of metaphors to propagate thinking more towards the named concept than the intended values and ethics. Under the notion of market place culture, Selby (2010) argued that sustainability advocates tend to hide their sustainability schemes in names like  'eco-friendly business', 'green economy', and 'ethically produced' (Selby, 2010, p. 37) .

The interview dialogue with Shose, in Box 5.4 further on in this chapter, provides an example of the divergent interpretations of income in the village community of Kisanga in the Pugu and Kazimzumbwi community. Part of the interview with Shose covered the social-cultural conflicts that were perpetuated by differences in economic capabilities regarding forest resources. Shose's account showed that the differences in economic levels between social-cultural groups may subject community members to social insecurity. Shose's account demonstrated the micro-politics behind social-economic divergence within the loggers' communities. The local people at Shose's village considered their low economic capabilities as a cause-effect for social and economic victimisation from outsider loggers. The local people looked at loggers from outside the community as economically powerful and socially destructive. Shose explained that the capacity of local loggers for large-scale logging was limited.

Loggersfrom outside the community were financially stronger and hence were able to pursue large-scale businesses linked to logging. Shose also claimed that loggers from outside the community were bribing forest guards and other government officials. She explained that the local community was mindful of the money that these loggers spent drinking beers and snatching other people's wives. Shose explained that the introduction of beer in the village was not in keeping with local people's tradition and was thus destroying the local culture.

This research identifies and examines issues of equity and economic inconsistency at micro levels, which are indicative of broader sustainability issues. A careful look at the learning implications mentioned in Shose's account revealed a strong influence of social, cultural and economic relations in logging practice. This could explain how the notion of income generating capacities could easily be turned towards market competition. A man whose life was destroyed by losing his wife to an outsider logger might not prioritise his economies to forest management before retaliating against his psychological displacements.

The argument I want to raise is that community-based projects need to be aware of invisible micro-politics, and social-cultural and economic dynamics in local contexts. Cundill et al. (2011) advised sustainability managers to focus their attention on collaborative engagement of diverse social groups of stakeholders in local projects. They believed that through collaborative engagement and collective action, negotiations between groups could be facilitated to achieve a common understanding. Cundill et al. (2011) encouraged the creation of local forums to enhance social interactions, sharing of objectives, identifying of common problems, and formulating of solutions and common actions. The work ofPahl-Wostl and Hare (2004), Pahl-Wostl (2006) and Pahl-Wostl et al. (2008) on water resource management encouraged the development of new relational capacities between social agents and between human agency and ecological systems. They identified and described the value of addressing relational qualities in learning for the management of resources as equally important as technical qualities. However, both Cundill et al. (2011) and Pahl-Wostl et al. (2008) noted the complications of managing people's differences in natural resource management.

### 5.10.7 Gender and IGA learning implications for forest practices

One observable feature in community learning through IGAs is a tendency to acquire platforms for working with women in rural communities. Albee (1994) identified the objectives of IGA as supporting women's productivity and relieving the economic hardships of women. The IGA orientation to women was observed during the field interventions, when IGA issues were often raised by women in interview conversations and informal talks. None of the male participants mentioned an experience with IGA practices, unless specifically asked to do so. On the contrary, all women that I conversed with took great delight in discussing IGA schemes at any opportunity. Only on one occasion, during formal talks in focus group discussion at sub-site II, did I observe a male's version of an IGA experience. The details of this talk are presented in section 6.3.4, as part of the discussion on collective deliberations on IGA insights in focus group discussions.

This research was particularly focused on transformative social learning and hence was not equipped to differentiate between gender-based responses. However, the gender-oriented differences on key conceptsthat emerged, such as those linked to practices in forest management incentive schemes, were obvious and merit significant discussion.

### 5.10.7.1 *Women oriented origin of IGAs*

The men-women dichotomy on the learning economy resonated with significant relational debates that impact on IGA agency. Jones and Carswell (2004) observed that gender sensitivity emerged in the 1970s, in response to political development and modernisation. They argued that this emergent gender sensitivity signalled concerns of improving economic conditions for women in developing countries. Women's conditions were observed according to several criteria of poverty, including household power relations, production capacity, and economic contributions (Albee, 1994; Jones & Carswell, 2004; Makombe, 2006). Makombe (2006) studied entrepreneurship development and empowermentin Tanzanian women. He also observed that IGAs originated in the 1970s and that IGAs focused on improving the economic conditions of women. Albee (2004) wrote extensively on holistic approaches employed by UNICEF in the 1990s for improving the strategic and practical needs of women in developing countries.

Drawing on these observations, this research understands the concept of IGA to originate from a general concern for the economic conditionsof women. The concept was not specifically developed to supplement natural resource management efforts. It is more likely that ideas of IGAs as alternatives to natural resource utilisation emerged parallel to positioning women as victims of their environment during the eighties (Jones & Carswell, 2004; Nhamo, 2014b). According to Jones and Carswell (2004), as part of the ongoing debate regarding women as victims of their environment, the Women, Environment and Development movement in the 1970s finally resolved some of the issues by orienting women's outlook towards an eco-feminist approach. The eco-feminist outlook postulates women as natural lovers of nature by virtue of their sensitivity to life and their intrinsic loving care (Jones & Carswell, 2004; Nhamo, 2014b). The eco-feminist perspective assumed the goodness of women for caring and their natural affiliation to sustainable system development. This inspired gender-related conservation around the world. Albee (2004) described the 1980s outbreak of agencies working with marginalised women in developing countries. Such efforts succeeded in regulating and empowering gender relations between women and men in products, capabilities, and capacities, as explained by Albee (2004):

> By the end of the decade, scattered evidence was revealing that an increased number of poor women were creating their own jobs in small-scale agriculture, manufacturing, services and petty trade … Evidence also indicated that the smaller the business, the greater the chance of it being owned and operated by a woman. (unpaged)

Albee (2004) did not expand on the reasons for why poor women tend to master smaller business better than bigger business. Albee (2004) also did not indicate whether this conclusion was derived from facilitator's observations or from the women that managed the businesses. Was it a general prejudice against women capabilities? Was it to do with literacy? Was it poverty? If it had to do with literacy and poverty, could it affect men in the same way as women? Did it sound like donors' preference of women so they could offer little in terms of investment? These are only some of the questions a researcher could ask when researching this subject.

The incentive schemes at the PKFR community were designed for both women and men in order to empower the local community by developing financial capacities and

capabilities. This aimed to reduce human pressure on forest resources. The interview data showed that women were slightly more enthusiastic about IGAs than men. How does this relate to community learning, agency formation and forest management? Sunderland et al. (2004) expanded on this by observing the dominance of women in forest-based IGAs in Africa. Women were predominantly good in marketing and trading of finished goods, in collaborative networking, in self-organised groups, as well as flexibility and diversity in business negotiations. Sunderland et al. (2004) acknowledged the inherent ability of women to optimise group activities while showing intelligence and effectiveness in keeping orderly routines. This indicates that women are natural social learners and good participants in communities of practice, as was empirically observed in the PKFR community. There may be multiple reasons and interpretations for Sunderland et al.'s (2004) observations, but it is sufficient for this research to note a few reasons for predominance of women in IGAs.

Ahteenmakl-Pelkonen (2002) also argued that women's learning presents a challenge to the theoretical concept of transformative learning. The challenge lies within the origin of the theory, which denoted Mezirow's framing of the transformative learning concept in 1978, which was informed by adult women learners only (Ahteenmakl-Pelkonen, 2002). Many reviewers of Mezirow's early works agreed that Mezirow's concept of transformative learning theorised a rational shift in adult meaning perspectives regardless of gender (Taylor, 1998 Ahteenmakl-Pelkonen, 2002; Kitchenham, 2008). This involved a transformation of frames of reference as well as the creation of new frames of reference to manage a wider range of experiences (Mezirow, 2003, 2004, 2009). Ahteenmakl-Pelkonen (2002) claimed initially that it did not matter whether learners were male or female, until one gender-related critique of Mezirow's theory raised the issue:

> While his advocates for strategies for self-directed learning have attracted great interest, they have also received their fair share of criticism in the United States. … Some of the authors … suggest that since his ideas of consciousness raising and critical reflection have been based primarily on studies of middle-aged female students, they should not be seen as representative of all or even most adult learner population (Ahteenmakl-Pelkonen, 2002 p. 2).

Mezirow's learners also formed a specific cohort of women, organised in well-coordinated educational programmes. The question of whether the outcomes of

Mezirow's results were generalisable to other gender groups was not part of this present research. As noted earlier, this study familiarised itself with gender-based learning logics, which was not necessarily the main subject of the research, but which did provide possible explanations for the analysis.

*5.10.7.2  Women's orientation to IGA investments*

Ijang (2004) observed that women and adolescent children were dominant in fuel wood collection in Maroua, Cameroon. The women and children collected dead wood that was used as fuel for domestic purposes, while men harvested live trees for timber. He also observed that the dead wood was poor in quality, in terms of market value, compared to the hard wood that men logged for timber. Men logged from selected species of trees that were of high quality timber and also had a high fuel value. Men in Maroua logged high quality timber to ensure a high market value for their wood products. Social-economically, women's capacity to collect large quantities of wood was low, since they relied on physical energy to carry wood on their heads, while men transported bulky wood loads with pickup trucks (ibid.). The Cameroon case is not far removed from the charcoal business in Pugu and Kazimzumbwi. Interview data showed that men dominated charcoal production, which involves harvesting live trees to make good charcoal kiln. Charcoal also had a higher market value than fuelwood which was collected from dead branches of trees by women.

This research noted that IGAs that are small scale in investment may not offset the type of wood business conducted by men. Anything less than the benefits accrued from hard wood, regardless of the sustainability conditions, may face challenges in persuading change. The logic of offsetting the hard wood business through IGAs may need a bigger investment return than ordinary IGAs, which ranged from chicken projects to savings groups in Pugu and Kazimzumbwi. Rahman et al.'s (2012) findings in Bangladesh also supported this observation. Women involved in wood collection may find the IGA investments attractive since they typically receive minimal support in economic capacities and capabilities to effect quality changes. For instance, an investment in energy efficient stoves could relieve women and adolescent children from carrying heavy wood loads on their heads. It could also help to save women from spending time searching for firewood in addition to other domestic roles and responsibilities. A project on sanitation, coordinated by Plan International (section 5.9.2) at the Pugu and Kazimzumbwi community, is a potential investment

for public health and social well-being. The project may save women from spending time and energy in attending to sick children and other sick people in their family. Healthy lives and improved prospects for girls' education were popular ideas for community development, despite the lack of financial income for individuals. Improved public health and girls' education is unlikely however to stop (male) loggers from harvesting mature trees for selling as wood. I still puzzle about Magilu's story (Box 5.3A) about Tandem's investment of three chickens for three households in Maguruwe village. It is hard to understand the community changes intended from this level of investment and what further plans for building on chicken investments the Tandem project had in mind.

## 5.11   SUMMATIVE OVERVIEW OF LEARNING IN ENFORCEMENTS AND INCENTIVES

Chapter Five has described the chronology of forest events that occurred in forest enforcement and incentives at PKFR within the timeframe of the study, and their implications for transformative social learning. In Chapter Two and in sections 3.3.4 and 3.3.5, transformative social learning was shown to occur in iterative cycles of learning processes that must be endured. Chapter Five observed processes of social learning that occurred at Pugu and Kazimzumbwi in various spaces of people's involvement in participatory forest projects, as described in sections 5.7.2.1, 5.7.2.2, 5.9.1, and 5.10.3. The chapter also observed the impact of social learning on people's practices as some individuals occasionally changed their orientations to practices following new understandings. Subtle changes in peoples' perspectives and practices were also evidenced and described in sections such as 5.7.4, 5.9.1, 5.10.3 and 5.10.7.2.

Hargreaves (2011) identified a tendency of subtle changes in people's practices to occasionally manifest in life, which he termed 'practice as entity'. He recommended endurance in practising the practices until the practices are normalised in individuals' lives and termed this 'practice as performance'. Chapter Five has observed several practice entities in the Pugu and Kazimzumbwi community, most of which could not be sustained to become normalised performances or social transformations. Some of the constraining conditions for learning towards normalised changes and transformation were described in section 5.7.2.3 and section 5.7.3. Section 6.6.3.6 and

Table 6.4 will elaborate onthe observed trend of learning, agency formation, change and transformation in the community of Pugu and Kazimzumbwi.

## 5.12 CHALLENGES OF TRIANGULATION AND SYNERGISING ARCHIVAL RECORDS WITH DATA FROM INTERVIEWS AND FOCUS GROUP DISCUSSIONS

In analysing data of the first investigation process, data from interviews, focus group discussions, analysis of documents and archival records were triangulated. This mostly helped in mapping out trends of changes with implications for learning insights and social changes. Sorting pieces of information from documents and scrutinising data that was generated from archival records was a challenging part of the process in locating local people's voices to triangulate with the oral narratives.

### 5.12.1 Learning evidence that never materialised

The challenge of sorting out archival records into chronological trends of changes in forest practices was escalated when analysing artefacts and physical features that were educational but did not normalise in the community. This means that such features indicate learning evidence or social change in a particular space and time, but that they were not put into practical use. Such features of time do not carry the learning value intended in the specified contexts. Rodela et al. (2012) noted the complications of relocating such features in their spatial-temporal dimension in order to re-interpret them. Rodela et al. (2012) described the difficulties of interpreting and constructing meaning out of secondary data, including documents and archival records. For instance, the process of constructing nature trails in the Pugu and Kazimzumbwi forest reserves was recorded to have a high impact on community learning in the PFM timelines. The same features (nature trails) may still exist at the site as evidence, but they do not play any significant role for tourism, as was intended. More than ten years after the construction of nature trails, there was no hope for potential tourism activities to emerge at the site. Chronologically, the nature trails, by their existence, were reduced to learning antiques. Some of the similar artefacts that failed to demonstrate the learning impacts they were intended to have, include training certificates and particular individual skills that were never practised. The failure of such entities to normalise in the community at that space and time, may impact subsequent rationality of the values of the entity for learning. For instance, the

community claims that the value of learning entrepreneurial skills has not normalised because of the termination of the REDD project. Such activity processes may over time be questioned, retested and critiqued by the public, since they may look and sound different in different contexts. Generally, the value of training lies within the empowerment of individual capacities and capabilities to manage lives. What was generated from local people's experience was contrary to that outlook:the sense was that most training did not empower the local community. ChaptersSix and Seven take this discussion further.

### 5.12.2 Delayed in incubation period for learning outcome

Some of the learning interventions did not fit in the research timeframe of ± 15 years, since their learning outputs may not become apparent within the short spatial-temporal dimensions. For instance, if the entrepreneurship activities were effectively implemented at PKFR in 2012-2013, it would take a long time for entrepreneurial activities to offset the greenhouse gas emissions in the community. For instance, Plan International supported children poverty alleviation projects by providing schooling facilities for girls, proper sanitation, and child security and social welfare before 2000. The services offered by Plan International are very pertinent to the community, but the kind of educational return in terms of holistic change in social lives could not be observed within the four timelines of the learning indicators. The incubation period for a value-laden learning programme can be extensive and the outcomes may not manifest in ways that many people expect. If observations are confined to the chronology of events that were actualised in forest changes and social transformations during the project timeframe, it is likely that the whole essence of the events would be missed. The integrated learning that occurred in the annotated timelines of Tables 5.1, 5.2 and 5.3, may represent only part of the learning that potentially occurred, and which may not always manifest in practice. Chapter Seven will discuss some of the learning possibilities that were not visibly actualised in the sequence of change events.

**5.13    CONCLUSION**

This chapter explored to the first two specific objectives, which sought to address the research questions mentioned in section 5.1. The chapter located evidence of social learning and transformative learning processes from data generated in the first investigation process. The chapter mapped out trends of community learning over the fifteen years timeframe. The learning processes were informed by the context, social-culture, and historical enablement/constraints that influenced processes within a particular time and space. Thus, this chapter showed how and why the learning emerged at specific spatio-temporal moments of structural conditioning and agency activities. The learning spaces from incentive scheme practices were further described in terms of their links and impacts to forest management practices. Theoretical, methodological and conceptual ideas from prominent scholars in sustainability learning were used to openup discussions on both the learning that occurred and failed to occur.

# CHAPTER SIX: REFLECTIONS ON REDD PROJECT MECHANISMS AND IMPLICATIONSFOR TRANSFORMATIVE SOCIAL LEARNING

## 6.1 INTRODUCTION

Chapter Six presents a thick description of the results mainly from the second investigation process. The investigation addressed the concerns of the third and fourth specific objectives of this research study. These two objectives specifically called for an exploration of learning spaces in the REDD practice mechanisms by answering four questions, as outlined in the third and fourth objectives in Table 1.1. The four questions were designed to inquire (1) what forest practices were introduced by REDD and how they related to social learning and transformations; (2) how and why the REDD project influenced social learning and transformations; (3) what the enabling and constraining conditions were for the people of PKFR to learn and transform as they took on new forms of forest management practices; and (4) how the enablement or constraints of REDD through adaptive co-management approaches (discussed in section 2.6.6.3 and 4.4.8.3) shaped human agency, transformations and social-ecological change.

The data presented in this chapter is a consolidation of collective accounts of community reflections and deliberations about learning in the REDD project facility in the Pugu and Kazimzumbwi community. Part of the data was obtained from focus group discussions held in August and September 2013, as shown in Table 4.5, and part from the reflective workshop, introduced in section 4.4.8. Collective reflections of participants were encouraged in rationalising deliberations on the relevance of the REDD project mechanisms to adaptive collaborative management. The deliberations helped the research to observe the implications of REDD mechanisms and practices for transformative social learning in the community of Pugu and Kazimzumbwi.

Section 6.2 presents the key learning insights that were directly observed during the conduct of focus group discussions. A multi-modal approach of analysing non-verbal signals was employed to identify learning potential in the Pugu and Kazimzumbwi community. Section 6.3 presents insights on the practices of the REDD project in the community, as deliberated by local people's verbal discussions in the focus groups. Four categories of insightful deliberations were identified for learning, in line with the two forest innovation focuses, namely the forest enforcement practices and the

incentive schemes practices, explained in section 4.4.1.4(i) and section 2.7. Finally, section 6.5 presents the output of participants' reflections on REDD project mechanism against adaptive co-management practices. An inductive analysis of the deliberations was undertaken to identify indicators of transformative social learning that were derived in section 3.3.5. Retroductive analysis of the same reflections was also undertaken to link different aspects of learning experiences, learning potential, constraints, opportunities and learning gaps as the community interacted with the project.

## 6.2 OBSERVABLE INDICATORS OF LEARNING FROM PEOPLE'S CONDUCT IN FOCUS GROUP DISCUSSIONS

### 6.2.1 Democracy in the group discussions

Both focus group discussions in sub-site II and sub-site III were conducted in a democratic way, as mentioned in section 4.4.5. Democratic processes were partially evident from people's sitting arrangements as shown in Figure 6.1. The sitting arrangements indicated the sharing of ideas and freedom of speech for all participants.

The chairmen of the villages were reasonably democratic showing considerable regard and flexibility for other people's arguments, even when the discussionconcerned official matters. The impression that I got from the chairmen is that their leadership styles were influential in openingup freedom for democracy and collaborative learning, as argued in section 2.5.4.4.

Leadership styles influence what people are and what people can do, and this may include mediating local capabilities for understanding and coping with problematic issues. From my observations in the two discussion groups, the groups were self-organised and articulate in terms of providing space for learning from each other and from a facilitator within the relevant context in the community. Shield's (2009) definition of leadership indicated that leadership can either enable or constrain effective dialogue and moral courage for action among people. Shield (2009) expanded on the importance of leadership qualities by describing how leadership tools could promote social justice, integrate power relations and "create spaces in which difficult conversations may occur, and to become expert in bringing together, listening to and truly hearing the inevitably conflicting perspectives that arise" (p. 62).

The quality of educational leadership described by Shield (2009) is not very different in any community leadership scheme, since the identified skills and charisma may well enable learning, social change and transformations of people in community fora. The logic of effectiveness in leadership for adaptive collaborative management approaches was discussed in section 2.5.5.3.

### 6.2.2   Gender relations, culture, responsibility and accountability

Male participants were relatively more proactively vocal than female participants, although they did allow female participants to express themselves. For instance, male participants were interrupted several times by female participants in the talks, but seemed to positively accommodate the interruptions whenever they occurred. I noted a reasonable regard for female voices in both group discussions and it was, thus, difficult to establish the reasons for the relative lack of participation by females. There could be many reasons for this but a likely explanation could lie within culture, traditions and values. Sabai's (2014) study of experiential learning in coastal communities of Tanzania noted the influence of 'culture' in mediating community-based learning practices. Culture was seen to provide both enabling and constraining conditions for community practices (ibid.). Like Sabai (2014), this present research supports Sayer (2000), who encouraged community-based practitioners to identify enabling conditions of agency formation as a key step in understanding people's potentials and capabilities. Thus, this part of the analysis of observable group conduct aimed to establish the conditions that may influence social learning and transformation in Pugu and Kazimzumbwi.

*Figure 6.1: A picture showing a female participant (bottom right) writing proceedings of the focus group discussion in Maguruwe village for sub-site III*

As a researcher I suggest that dialogical processes in discussion groups at Pugu and Kazimzumbwi were mediated by socio-cultural and historical conditions that were relevant to the ethical standards of the community. The mediating conditions also suggested by Dantley & Tillman (2006) may include caring for each other's roles and responsibilities amongst relevant gender groups and age groups. It is also worth noting that there was a female participant in the discussion group of sub-site III who was busy listening and writing down the discussion proceedings. I later came to understand that the female participant was a village executive officer and that she was documenting the discussion for village records as shown in Figure 6.1. Sabai (2014) described the involvement of marginalised groups in various forest management tasks in rural (coastal) communities. He identified this as a means to justify moral obligations in a community caring for the local environment and to allow social and contextual enablement in practices. The observation of a female proceedings writer in sub-site III was reinforced by a second observation of a female participant who was elected group secretary during a workshop, as further discussed in section 6.4.3. My

impression of coherent, well-defined, organisational structures in villages and of collaborative and learning empowering leadership framework was strengthened.

## 6.3 REFLECTIONS ON REDD PROJECT FROM FOCUS GROUP DISCUSSIONS

As explained in section 4.5.3, inductive analysis of deliberations from focus group discussions categorised the discussion data into four learning areas of concern: (i) reflections from past experiences; (ii) REDD activities on forest enforcements; (iii) government actions on forest enforcement after REDD withdrawal; and (iv) incentive schemes and capacity building by both REDD and PFM. This section discusses the analysis of each learning area of concern.

### 6.3.1 Reflecting on REDD practices from past experience

The discussions recalled the experience of failing to come to terms with the government concerning the Joint Management Agreements (JMA) for partnership. The JMA memories were connected to the REDD project because the REDD project at Pugu and Kazimzumbwi promised to intercede for the community on outstanding JMA issues between the community and the government. The data from the focus group discussions indicated that JMA proposals were drafted by village communities, outlining the preferred terms of partnerships. The proposals were submitted to central government for consideration through district authorities. The data shows that the community realised that village councils were unable to negotiate with the prospective partner, the central government, when they wished to (Box 6.1). The forest authorities in the district were not responsible for any JMA issues because, by Forest Act No.14 of 2002, districts are not authorised to manage national forest reserves in their local areas (United Republic of Tanzania, 2002). Thus, the JMA draft proposals were forwarded to the central government for review. This marked the end of the JMA dialogue between the village councils and the central government. There was no feedback from the central government and no forum for dialoguing with the central government. Box 6.1 below presents some quotes from the group arguments about the JMA issue.

**Participant 3MSK:**
We can't work without JMA.Without JMA we are not legally-bound to patrol forests or arrest forest vendors. If we get injured during the patrol process or during suspect arrest, who will insure it? There was never a response from them (government) … We can't contact them … the district forest office is not responsible on matters of national forest reserve.

**Participant 2K2PB:**
When the funding is finished and the NGO is done with us, there is no local authority to govern sustainability of the good stuff that were projected in the community. Talk about the government … the central government has no budget for local initiatives! … The budget for the local initiatives is in the district councils. If the district was not legally bound in the project processes from the beginning, how can it possibly take the responsibility of sustaining the processes? Everything is left to villagers and everything is left to die a natural death!

**Participant 2K2PB:**
Administratively, the village councils cannot access the central government without approval of the district authorities … the district council is not concerned with national reserves ... and so the district council offered to help in representing the villages to the central government. This gap … was … the end of JMA negotiation between us villagers and the central government … there was no response until today and we don't have ways of asking the government to explain to us why they decided to keep quiet.

**Participant 2K1AM:**
Mmh! This guy [2K2PB] is putting it very well. You have made it very clear now! … You explained this issue very well ... It made it even clearer for me to understand it better now … actually, it has been very well explained. Now, I have a better picture of the crisis. The forest is now degraded, who is to blame? The central government? The district authority or the people? At the end of the day, we, the people, are the losers.

**Participant 2K2PB:**
This is ridiculous! The authority that has people doesn't own the forests, and the authority that owns forests doesn't have the people. Look at our neighbours, how they benefit from their forests … simply because the forests are privately owned by village authorities. The forests are public forests. They benefit from charcoal schemes and they gain revenues when illegal products are confiscated. Our neighbours, whose forest are publically owned, are very far in terms of benefits from forest products.

The data showed that the communities could not continue with forest surveillance, since they did not have the legal rights to reproach forest vendors or confiscate their forest products. The community also lacked proper institutional support for managing matters of national forest reserves at district level. More insights from the data expressed that the community lacked support from district officials and resorted to district law enforcers like district police and the magistrate. Villagers claimed that law enforcers complicated the matter since it was easy for culprits to escape village charges from police.

### 6.3.2 REDD approaches to forest enforcement practices

One of the intended outputs of the REDD project was to advance forest enforcement practices by building on PFM community initiatives (WCST, 2010). The project promised to provide legal consultancy in finalising the process of JMA. It had also introduced carbon trading ideas to protect the forests and support the farming of trees. Data from focus group discussions indicated that by the first twelve months of the project, REDD had facilitated around sixty nurseries for tree seedlings. Planting campaigns were organised to plant trees in forest reserves, public areas and individual farms. The village communities estimated that a total of 250 000 trees were planted in the forest reserves within the first twelve months of the project, as expressed in a quote in Box 6.2. The project also established fire control committees to join and add strength to the existing village environmental committees. The focus group claimed to see changes in improved environment services within the twelve months of REDD intervention. However, the community claims to face opposition from a group of land activists from neighbouring populations in sub-site III.

*Box 6.2: Some quotes from focus group discussion in sub-site III concerning REDD forest enforcements*

**Facilitator:** What was new in the REDD project experience?

**Participant 3MSK:** The carbon trading was linked to tree nurseries to extend carbon sink ('kuongeza chungu cha hewa ukaa'). We prepared land for nurseries … uhm … I think more than sixty nurseries were established. We looked for sites where we could get water … we dug wells for watering the seedlings.

We planted trees in the forest reserves. … Yes, we planted indigenous trees, which we raised in the nurseries. … Uhm, around 250 000 trees were planted. They also strengthened forest committees by integrating fire committees ('shughuli za doria na moto zilikwenda vizuri').

Yes, I was involved in measuring carbon sinks. I can do it myself. They brought an expert from SUA, but the measuring involved local community. I can set transect plots, I can measure the lengths of trees and the widths … the diameter … I think they said we will measure again after one year.

**Participant 3M2SD:** Imagine, the one year of REDD activities enabled water levels in natural springs and wells to raise. We have only four wells. We had twelve perennial wells by 1990, when the forest was thick and healthy, now we are left with only four.

**Participant 3M1ML:** There were village forest committees with fifteen (15) members. There are also fire committees with twenty (20) members. These are new … together they make a forest committee of fifty-five members in each village.

No … there was no training for the whole committee. They [REDD] took some village leaders, a village chairman, a school headmaster and some two or three individuals for training seminars in Kisarawe centre. When these people came back they organised village meetings to brief us about the REDD project and to conduct elections for committee members.

The group discussions discussed the institutional arrangements for the REDD project in the district. During the discussion it was claimed that local authorities in the district were not legally involved in the project, as discussed in 6.3.1. The discussion groups were aware of the contractual agreements that REDD entered with local institutions in the country. They identified legal agreements and memoranda of understanding that development partners entered with the government through facilitating NGOs. They queried the lack of legal binding agreements with local authorities, including district and villages, as expressed by 2K2PB in Box 6.5. The focus groups assumed the project to take advantage of individuals' will power to cooperate in project activities in village communities, as expressed by 2K2AM in Box 6.5. The group discussions regarded this as a gap of communication and proper governance in the REDD project practice at PKFR. They also claimed that the gap gets worse when the project leaves the site because the district authorities are not responsible for initiatives left by the project.

### 6.3.3    Government approaches to forest enforcement

*6.3.3.1 Community perspectives on government performance in REDD*

When focus group discussions were conducted in August-September 2013, the NGOs that coordinated REDD project activities in the field had stopped their work. The data highlighted that all project activities in the community were also recommended to stop, since there were no funds to support these. In group discussions, the local community speculated on reasons for REDD's withdrawal from the project, since they were not given an official statement explaining the reasons. The community considered the government's responsibility inadequate to monitor NGO work on the ground. They speculated that the NGOs had messed up the project implementation because of the government laxityin controlling NGOs' practices. They believed that the reason for the REDD project stopping had to do with donor dissatisfaction with the performance of NGOs. As participant 2K2PB put it, "How can you give your child to a caretaker without stating your terms and conditions? Such as, 'I want my daughter to be given away for marriage after she finishes school' etcetera" ("Hivi utampaje mtu mtoto akulelee bila masharti ... lazima umwambie … nataka binti yangu asome kwanza, ndipo aje aolewe. Au sio bwana?").

*6.3.3.2 Community perspectives on government enforcement styles*

The community also blamed the government for failing to control people's encroachments into reserve lands. The focus group discussion at sub-site III was aware of the regular forest patrols conducted by the government. The community thought the government patrol was insufficient since the patrol vehicles could not enter the centre of the forest. The focus group claimed that most of the forest abuses took place inside the forests and were not visible to vehicle patrols. They also claimed to lack support from government institutions when they conducted village level patrols, as shown in Box 6.3.

**Participant 3M1ML:**

The village forest committees continued to work after the REDD project had stopped. The committees are now reporting forest issues to the forest manager, who works for central government.

There is one invasion case that was taken to the police station and the project manager was there. The police was processing the file, the forest manager appointed one villager to represent the claimant side of a case (the whole group laughs).

**Participant 3KSP:**

There must be something wrong within them (the government). How come a man, as powerful as that project manager (by name), lacks confidence of standing for the claimant in an invasion to a national forest reserve? He is indeed the government! And how comes an individual villager stands as a claimant for a government forest case? This is ridiculous! (Murmurs, noises and laughter in the group.)

The group discussion indicated that there was speculation in the community that the government was planning to politically justify invasions in the forest reserve by surveying the invaded area for residence extensions. The discussion groups were furious about this because they sensed it would only benefit the opportunists. They believed that the people who encroached Kazimzumbwi forest reserves were land opportunists who wanted to justify their ownership of the land. The following are quotes from focus group discussion illustrating some dynamics of the problematic issue.

**Participant 3M2SD**

These people (forest encroachers) strategically come to grab this part of reserve land for their personal benefits … and the government is letting them in. Would it not be better for the government to portion that land to surrounding villages, so we can expand our farms? How does it make us feel to see other people from outside this district being offered plots from our land, while we starve by squeezing our families in small pieces of farm plots?

**Facilitator probing:**

Do you wish the government to pay them off, so they may leave the site?

**Participant 3MSK**

Oh, never, I don't want to see that happening. The government must not pay them anything. They chose to invade the forest reserves … It is by choice! The government must chase them away! It is not fair to pay them!

### 6.3.4   Incentive schemes and capacity building by both REDD and PFM

The focus group discussions acknowledged both REDD and PFM for providing incentives and training for the community. The following is a summary of the deliberations in the two group discussions that show reflection of community perspectives on incentive schemes. The summary describes potentials and benefits of incentive schemes for individuals and for sustainability of forest initiatives.

- The focus group in sub-site II claimed that the knowledge and skills that were offered to individuals and groups under PFM and REDD project were wasted, since individuals who were trained never practised the skills in the community. The knowledge was therefore neither transferred to other people in the village nor benefited the trained individuals. The entrepreneurship training by the REDD project (fifth column of Table 5.3) was given a title of 'university certificate', meaning that people were offered big certificate names without knowing what to do with the certificate or the knowledge. See quote in Box 6.5.
- Both groups claimed that the funding and the financial support offered for local project activities in communities were too meagre to replicate sustainable income

generation. They claimed that the size of investment in IGAs during PFM was too low to change community livelihood (reflected in Box 5.3). The groups said that they were expecting the carbon trading by the REDD project to make a substantial contribution to income. The focus group in sub-site II specifically blamed NGOs for proposing inadequate budgets in relation to the items of interest to the rural community. They questioned the rationale of NGO staff securing the lions' share for their individual salaries, while leaving rural communities without development. See quote in Box 6.5.

- The group discussion at sub-site II expressed that the issues of sustaining income generating activities after a project's funding is exhausted were complicated. Community members were left to progress the local projects without involving the district authority that sets development plans. The general district development plans cannot necessarily recognise local projects that were not part of the mainstream district plan. The community felt that the projects need to understand district development priorities before drawing plans for entrepreneurship. The entrepreneurial activities must also be part of district activities. See quote in Box 6.5.

- The community always reflects on both past and present experiences of incentives (ranging from community banks, micro-projects to entrepreneurships), which indicates unsustainable management for progression. This concern was equally shared by both focus groups, since whenever new projects are introduced, the Income Generation Activities are executed and once the project ends most activities are ended. There is no continuation from one project to another. The community is always anticipating a better future, which never arrives. See quote in Box 6.5.

*Box 6.5: Some quotes summarised from the two focus group discussions about IGAs development in the community*

**Participant 2K2PB:**

I have a big certificate - university certificate (raising hands forward to imagine showing off the certificate). It is useless. These people are not serious. REDD has trained us on entrepreneurship by using university experts … and here we hold 'university certificates'. We have no idea what to do with the certificates or the knowledge.

**Participants 2K2AM:**

You see, when these people come (project team) they don't want to engage the district authorities in micro-projects. They mobilise individuals in the village. We respond to them because they claim to come from central government …I don't know …sometimes we are insecure … Since they are not bound to district authorities, they quit without need for explanation. The micro-projects are left there … without support and without supervision. Imagine project activities left in individuals' hands.

**Participant 3M1ML**

Every time they come, we start new projects ... There is no progression … no continuation from previous projects … these pieces and pieces of activities that cannot bring us any change. They do not come here for progressive development. They come when there is funding from external donors and they leave once the funding is exhausted.

**Participant 2K2PB**

If the micro-projects were implemented through district councils, these projects would need to sit down with the district to discuss the fate of projects. The district councils get money through Regional Administrative and Local Authorities for rural development. The central government does not have money for rural development. How can it take over the village activities that are left by external projects? The central government is like a big politician, with big money, but not able to repair little parts of the village school. The central government is the owner of it all, but cannot do anything without the district authorities, because it is the district that manages people.

## 6.4 LEARNING OBSERVATIONS FROM REFLEXIVE WORKSHOP

The interventionist reflexive workshop, described in section 4.4.8, was conducted at the Kisarawe district centre, inside the Teacher's Resource Centre on the rainy day of 29 May 2014. The workshop was attended by representative members of all three sub-sites, as was shown in Table 4.10. Thus, the workshop was the most inclusive forum, bringing together representatives from all sub-sites.

### 6.4.1   Learning insights observed directly from workshop expressions

The first part of the workshop reflected on the data generated from the first investigation process, so that workshop members could see and comment on it. The full process is described in section 4.4.8.2 and a summary of the mirrored data is attached in Appendix 4. Workshop members were fascinated to receive the mirrored data and were interested to learn from the results and share further insights. The enthusiasm of workshop members for the results astonished me as a researcher. Workshop members were delighted to see their contributions to problematic issues presented in the mirrored data. This motivated them as they reflected on their contributions to the community welfare as individuals, as they also hoped their contributions in this research would be a source of change in relation to troubling issues (Wenger, 1998; Merriam, 2002). Box 6.6 presents a few quotes that came from participants of the workshop. The quotes represent the overall comments after mirroring the data (first session) and the comments after reflections on REDD project mechanisms (second session).

### 6.4.2 Direct observations from workshop conduct

Workshop participation took a democratic form and participants were in control of the discussions. Men were proactive in speaking out on issues that were deliberated collaboratively in the group. Women seemed to have good memories of events during group discussions, which stimulated the collection of ideas and construction of collaborative deliberation. Women were also active through non-verbal gestures in support of what was deliberated and in emphasising spoken words. For instance, the women applauded, laughed and cheered during group presentations. On one occasion, a male participant (1N1RF) used a traditional saying to emphasise issues of forest justice, as shown in quote (xiii) of Box 6.6. A female participant (1NHN), who

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wanted to emphasise the issues, stood up and ordered a male participant to repeat what he had said. The workshop participants applauded, which assumes collective support to deliberate that particular issue of social justice. During the workshop, there were emotional interactions and a sense of unity, collaboration and collectiveness in supporting one another. Learning may occur through understanding each other and affirming each other's opinions. The female participant (1NHN) who emphasised the interpretation of the traditional saying in real context, in a way petitioned for all members of the workshop to endorse 1N1RF's comment for collective deliberation.

***Box 6.6: Some of the comments that emerged from both sessions of the reflexive workshop***

**Comments after mirroring the data (first session of the workshop):**

(i) I am very happy to see this feedback, which covered all my concerns. This is already working out. Two weeks ago there was a meeting with the district forest office. They called us and consulted us on issues that have transpired in the district. I am sure they are now getting the message.**(2K2PB)**

(ii) Thanks for taking the consideration to provide feedback on your research results. You have made us proud. We hope the outcomes of the research will be beneficial to the community of Kisarawe. We have participated in many researches before this, but we never get to share and proofread outcomes of the research … Thanks.**(2KAM)**

(iii) I want to thank you 'Mama' for taking the step to come back and give us feedback. Very few people have done that. It may sound like common practice to always praise the person that is present anyway ... but really, you have touched me today … I can see myself in this summary of research results, remember what I said. You did get me very well and you perfectly presented by issues, I hope they are going to get a solution … thanks.**(2K2PB)**

(iv) I am very happy … all the issues I raised have been covered. I am the oldest in this group. I still keep this card (raised up the membership card for Wildlife Conservation Society of Tanzania) this is my identity of forest conservation … yes, I carry it wherever I go. Thank you … Madam, we hope these people (the government) will take the things that we said serious … **(1N1RF)**

(v) I am of the same opinion, thanks for coming and giving us feedback on your research. Us who are coming from Maguruwe village, have already

suffered big losses. I have no idea for instance when the police is going to pass judgment on my assault case … I have heard nothing from them as yet. I am happy the troubling issues have been included in this work … **(3MSK)**

**Comments after reflexive deliberations on REDD mechanisms (second session):**

(vi)  We never knew we would be able to re-check the project practices in a way you have guided us through this reflections. You know what? We had to think critically, face challenges and we used our brains to come up with results. This is an eye opener … we have benefited a lot from this workshop. Other researchers come down here with many stories, they work with us in whatever they do, and then they give us money, home they go! When they leave we realise we didn't learn anything from them. This piece of work is really a lesson, I am going to keep this paper … **(2KAM)**

(vii)  Thank you Mama Victoria, I think even the government must be very careful with project implementation. And we will be well informed when the new projects come in ... We were so naïve in most of the past engagements because we did not know it was our right to understand all these things… and to be positioned in such a front position … the workshop has been very enlightening … **(3KSP)**

(viii)  You know what these people do? They pretend to 'give you something with this hand (right) while they take it away with this hand (left)' … That's how they give us things. Now we understand the tricks … they pretend to 'give you by this hand, while taking it away with this hand' (the words of a traditional saying were used).**(1N1RF)**

(ix)  As a Chairman of Kisarawe Village, I would like to tell Mama Victoria, like many people have said … we are very honoured by your coming to give us feedback on your research and to discuss issues of the REDD project. What you have done has meant a lot to this community … have gone through a lot of problems already … many researchers have passed here … and we hope people like you can help us to make those guys understand. Some of us are aware that this work is part of your studies and we want to wish you good luck in finishing your studies. Travel safe and wish you will come home safely … and we wait to work further with you on these matters when you come back. **(Chairman of Sub-site II)**

Throughout the workshop process I observed some constraints in women's social capabilities. The research also observed how constraints in social capability turned into motivations when given collective support and unity. Female workshop members

sometimes shied away from writing their names on the list of workshop attendance. For reasons not known, they asked a male colleague to write their names for them. There was also a female participant who was elected secretary to one of the workshop groups in the second session of the workshop. The female secretary asked to be accompanied by a female colleague in presentation of group deliberations, as shown in Figure 6.2. This colleague did not look at the audience as she claimed to be too shy to look at people.



*Figure 6.2: The shy woman accompanying a colleague in a presentation while facing away from the audience*

It took personal commitment and motivation for such a shy woman to accept the role of accompanying a colleague in a public presentation. This implies levels of inclusiveness that were encouraged during this research process. The unheard voices, the faces that could not look into other people's eyes and the minds that could not speak out their opinions were all actively encouraged during this research process. The research was able to include people who could not write their names, even if they knew how to read and write. The learning space at a nexus of motivation, commitment and inclusiveness was actualised in the eyes of the workshop members.

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## 6.5 REFLEXIVE DELIBERATIONS ON THE REDD PROJECT FROM THE WORKSHOP

A reflexive deliberation on REDD project mechanisms was facilitated in the second session of the workshop, as explained in section 4.4.8.3. Workshop members discussed and validated the relevance of REDD project practices in the community to the nine inter-relational assumptions of adaptive co-management approach, as explained in sections 4.4.8.3 and 6.5.1. The output of this workshop validation elucidated the practice arrangements in the REDD project in the Pugu and Kazimzumbwi community in terms of potential learning interaction. The results from the validation of the REDD project for adaptive collaborative approach and the insights from focus group discussion results were inductively analysed to develop indicators of learning, as adopted in this research from sections 3.3.5 and 5.2. The indicators of learning were later used to identify potential and opportunities for learning and subtle changes in practices in the REDD project mechanisms (see section 6.6.1). Inductive inferences in learning indicators were also used to identify enabling and constraining conditions for learning, change and transformations in the REDD project mechanism (see sections 6.6.1.1 and 6.6.2). This was done through inference to characteristic REDD practices (as perceived by local people at Pugu and Kazimzumbwi), finding causes and effects and potential conditions for enabling or disabling community learning.

### 6.5.1 Reframing the inter-relational mechanism in the workshop

Prior to engaging in the reflection process, workshop members were acquainted with key tenets of participatory management with a particular focus on adaptive-collaborative mechanisms, as shown in Figure 4.5. The description of the REDD project in sections 1.3.4 and 2.6.6.4 reflects the alignment of the project to adaptive collaborative approaches. The REDD project was explained to extend community support through collaborative approaches in reducing greenhouse gas emissions. Cornell et al. (2013) described the REDD project mechanisms as enhancing open knowledge systems. They identified the Intergovernmental Panel on Climate Change (IPCC) as guiding the performance of the open knowledge systems. The system works through collaborative reframing of problematic issues at different levels from regions to sub-regions. It is with such foundational arguments in mind that section 4.4.8.3 adopted the framework of adaptive collaboration and the nine interrelational

orientations to reflect REDD practice mechanisms in the community. The assumptions for interrelational mechanisms were discussed in the workshop and the assumed items were re-defined in terms of local people's understanding, meaning making and implications for the prevailing context. The workshop participants re-categorised the nine items by splitting some of them into smaller components, which they believed were more appropriate to them.

## 6.5.2 Collaborative reflections and validation of REDD for adaptive collaborative approaches

During the workshop, a collective reflection and validation was performed of the REDD project practices as compared to interrelational mechanisms characteristic of adaptive collaborative approaches. The workshop participants formed three groups of six individuals each. Each group went through a list of interrelational mechanisms (adopted from Cundill, 2010, as explained in section 4.4.8.3) to identify the relevance of each characteristic item of interrelational practice to the REDD project in the PKFR community. Table 6.1 presents the output of the deliberations on reflexive validation of the mechanisms.

The workshop participants marked each of their validated items with a performance score allocated by the group. The performance scores were marked as follows:

(i) When the characteristic item was well practised by REDD, the participants marked it as 'Nzuri' (meaning well or good performance), and the item was identified as **relevant** to the REDD project.

(ii) When the practice was not well performed by REDD, the participants marked it as 'Wastani' (meaning average performance), and the item was identified as of **low relevance** to the REDD project.

(iii) When the practice was poorly performed by REDD, the participants marked it as 'Mbaya' (meaning bad performance) and the item was identified as**not relevant** to REDD project.

Groups were comfortable enough to write anything they wanted to express how they felt about a particular interrelational mechanism, as shown in the working papers in Appendix4. Some groups chose to add the adjective 'very' ('sana') to stress the impacts of particular scores. Group presentations were organised to allow each group

to share their views and reasons for the scores marked against each item. So, the marked scores were debated among groups to come to a common understanding.

*Table 6.1: The nine items of interrelational mechanisms and their relevance to REDD practices*

| No. | Items for interrelational mechanisms | Explanation of the characteristic interrelational practices | Relevance of the practice to REDD | | |
|---|---|---|---|---|---|
| | | | Group 1 | Group 2 | Group 3 |
| 1 | Trust building | *Trust building between the groups involved in collaborative decision making.* | Low-not relevant | Low relevance | Low relevance |
| 2 | Groups with common interest having similar stakes in ecosystem management | *There is a common interest and shared vision.* | Low relevance | Not relevant | Low relevance |
| 3 | Economic or other incentives to participants | *Incentives for people who contribute/ reward compensations.* | Relevant | Relevant | Low relevance |
| 4 | Security of tenure over the resources of concern | *There is long-term security of access to resources.The decision making body is confident to prevent outsiders from using the resources.* | Not relevant | Low relevance | Not relevant |
| 5 | A perceived value in sharing information | *Participants recognise the value of sharing information between actors.Inclusive participation in the organisation or committees. Actors respect one another and listen to each other's viewpoints.* | Low relevance | Low relevance | Not relevant |
| 6 | A willingness to engage in collaborative learning and decision making | *All actors, from outside and inside the community, are willing to listen to each other and are willing to change what they are doing in response. 'Experts' are willing to learn from* | Low–non-relevant | Low relevance | Low–non-relevant |

| | | | | | |
|---|---|---|---|---|---|
| | | *resource users, and resource users are open to alternative ways of doing things. The project is viewed as a learning process by all involved.* | | | |
| 7 | Sufficient funding to enable practical actions and experimentation | *The state or its partners are committed to making a substantial and long term financial investment in the project. Long term skills and leadership development. Support for planning and decision making.* | Not relevant | Not relevant | Not relevant |
| 8 | Social networks that allow effective information flow | *Networks connecting local decision making bodies with other institutions. Outside partners are willing to devolve powers. The roles of different actors are clearly defined. Good information flow between everyone involved, informing what is happening and people's views and opinions are listened to.* | Not relevant | - | Low relevance |
| 9 | Effective local leadership or an 'honest broker' to facilitate conflict resolution | *Leadership –The leaders of the initiative care about more than just their own interests. The leaders are trusted and acknowledged by all actors.* | Relevant | - | Not relevant |

### 6.5.3 Preliminary sorting of interrelational mechanisms

Inductive analysis of preliminary output data from workshop deliberations, presented in Table 6.2, was performed by sorting out the nine items of interrelational mechanisms into five areas of interrelational embodiments. This was done in order to reduce a long list of numbers for convenience of interpretation, description and

presentation of the analysed results. The process of sorting the items of interrelational mechanisms into five areas was done by combining items that were similar in characteristics and/or items that were inductively related by inference, as shown in Table 6.2.

*Table 6.2: The sorting of interrelational mechanisms into five interrelational practices*

| No. | Item of interrelational mechanism as numbered in Table 6.2 | Combined interrelational practices |
|---|---|---|
| 1 | Item No. 5 and 8 | Openness in collaboration, networks and information communication |
| 2 | Item No. 2 and 4 | Collectiveness in framing of shared objectives and tenure of resources |
| 3 | Item No. 1 and 6 | Willingness to learn from each other and trust building amongst stakeholders |
| 4 | Item No. 3 and 7 | Funding of local initiatives and other local incentives |
| 5 | Item No. 9 | Effective leadership |

Therefore, the preliminary analysis resulted in five interrelational practices from the validated items. The practices were interpreted and described using validation data from Table 6.2 and the results presented in the following sections: (i) openness in collaboration, networks and information communication; (ii) collectiveness in framing of shared objectives and tenure of resources; (iii) willingness to learn from each other and trust building amongst stakeholders; (iv) funding of local project initiatives and other local incentives; and (v) effective leadership.

### 6.5.4 Interpretation and description of workshop deliberations

*6.5.4.1 Open collaboration, networks and information communication*
The items of interrelations in this practice were discussed by workshop members and the marking of the item's relevance to REDD project mechanisms ranged from low relevance to not relevant, as shown in Table 6.3. Explanationswere provided during group presentations. The explanations indicated that the community perceived the beginning of the REDD project as not transparent to local authorities, especially village governments. There were no specified roles for village governments and

district councils within the project, since the project was mobilised through individual leaders in village committees. The explanation also indicated that the people as individuals were impressed by the project ideas, since the NGOs worked hard to sell the REDD agenda to community members. Village meetings were initially used to communicate the project agenda and share success stories of REDD from other parts of the country and the world (see section 6.3.1 and 6.3.2 for insights of anticipative learning). After initial meetings, village governments were not involved in the implementation of the project activities. The community later noted a shortfall in collaboration networks, since local communications at district and villages were obstructed. The workshop justified the claim by concluding a lack of authoritative coordination at local government levels, as expressed in section 6.3.2 during group discussions.

*6.5.4.2 Collectiveness in framing and sharing of objectives and security of tenure over the resources*

The items in this interrelational practice were validated against REDD practices and the scores ranged from low relevance to not relevant. The explanations given for this validation in group presentations were as follows. Firstly, the community was not aware of the REDD project's time-span of five years, indicating less sharing of objectives. The chairmen of the four villages that attended the workshop were also surprised to hear the REDD pilot project was scheduled for 2011 to 2015. Secondly, the village communities were not officially informed about the termination of the REDD project implementations in the community. Moreover, there was no explanation given as to why the project stopped. Thirdly, since the community did not know the reasons for stopping the project, the groups wondered whose interests were served by stopping the project. Fourthly, the groups claimed that the community did not participate in framing and sharing most of the project activities. Fifthly, the data from group deliberations indicated a lack of collective framing and sharing strategies in the conservation of forest reserve and planning for land tenure systems. The lack of collectiveness in framing strategies for land tenure caused misunderstandings and insecurity in land management due to poor monitoring of invasions, as explained in 6.3.3. They also claimed that the lack of effective by-laws was another weakness in monitoring and managing of the reserve lands.

*6.5.4.3 Willingness to learn from each other and trust building among stakeholders*

The score of REDD practice for the interrelational items belonging to willingness to learn from watching others and trust among stakeholders ranged from low relevance to not relevant. Workshop group members claimed to be less confident over project partnerships because they lacked trust in the project implementers. Group presentations identified some stakeholders they did not trust, including collaborating NGOs. They called NGOs as opportunistic, individualistic and malicious, as is explained in section 6.3.5. The deliberations expressed a lack of motivation for the community to trust the project, because local people did not have enough information about the project and were not sure of community benefits from the forests. The groups claimed there was no willingness for experts of different fields to learn from other (ordinary) people who were not educated. However, the groups did not explain how they approached other (expert) stakeholders for sharingabout learning.

*6.5.4.4 Funding of local project initiatives and other local incentives*

The workshop validated the REDD project for funding of local project activities as not relevant. All the workshop groups claimed that funding arrangements for local project activities were not sufficient for community development, since the arrangements did not consider long-term perspectives. The groups also claimed they did not know the budget allocated for local activities and so it was not possible for them to contribute ideas for local project development, as explained earlier in section 6.3.5. The group presentation claimed that too much money was invested in the 'politics' of local economies, rather than the 'local economy itself'. "What we finally get … at most is chicken! A number of chickens in the village to bring social economic transformation … funny!"; stated participant 2KAM. The group presentations acknowledged that the gains that individuals personally received as incentives for participating in project activities were satisfying. However, they claimed that such individual gains were not sufficient for community development and social transformation. The groups felt the government should do something for community development. They suggested that village governments propose a collection of revenues from all externally funded projects that are implemented in the locations. This should serve as a development tax for the respective villages.

*6.5.4.5 Effective local leadership*

The effectiveness in local leadership was viewed differently by different groups: group 1 rated it very effective while group 3 rated it ineffective. Group 2 did not complete the validation exercise: the last two items in the list of interrelational mechanisms, including leadership, were not considered by group 2.

Group 1 explained that local leadership was reflected in the roles played by village chairmen and forest committees in supporting the community to take part in the project. The group considered local leadership from village government and identified village chairmen as effective in communicating information to people, organising meetings and serving as back-up for project issues. The group claimed that the village governments demonstrated effective leadership in serving community interests in the project. This included forest committees, fire committees, committees for tree nurseries, and other key individuals who were assigned by village leadership to represent the community in the project work. Group 3 explained that its view of local leadership was based on the roles played by local institutions that were supposed to serve community interests in the project. The group claimed that the institutions included law enforcers, like local police and district court, as well as district officials who were not directly responsible for the project. This groupclaimed to experience disconnections and little support from local institutions. The claim of ineffective leadership by group 3 was also extended to NGOs and national universities as local institutions that played roles in local leadership of the community. Group 3 claimed that the local institutions lacked willpower to pursue community interests in the project.

## 6.6 LEARNING, SOCIAL CHANGE, HUMAN AGENCY AND TRANSFORMATIONS

### 6.6.1 Learning evidence, collaboration and constraints

The descriptions presented in sections 6.3 to 6.5 support the previously presented data in the fifth columns of Table 5.2 and 5.3 and are indicative of potential and possibilities for community learning in the REDD project. Throughout the descriptions, the research also found moments where learning processes were constrained by emerging gaps in perspectives among stakeholders, as the project mechanisms could not address these, as discussed in this section.

*6.6.1.1 Evidence of learning*

The workshop data shows community motivation to engage in the REDD project by reflecting on past experiences and perhaps giving REDD a chance to address the existing practice problems, shown in the data from column three in Table 5.2. The community was informed by extensive experience in the field of participatory forest management, and so was consciously reflecting on practical actions to resolve existing problems, as was explained in section 6.3.1 and the quotes in Box 6.1. An example of the community being informed regardingcertain field practices was given in the workshop discussions, as shown in Box 6.7. The quotes indicate community praxis knowledge in tree planting, which the community wished the REDD project to follow in project practices.

**Box 6.7: *Some quotes showing community understanding of practices as part of praxis***

**Group 1:**

The issue of representation was poorly managed. Respect to community was nil; listening to community, nil; caring about community's perspectives, nil. For example, when they meet in their higher level meetings they don't care what the community says. For example, the community requested tree seedling during the onset of the rainy season but they brought seedlings in the dry season.

**Group 2:**

There was no good means of communication between stakeholders and this led to improper timing of actions. For example, the tree seedlings were delivered in the dry season.

**Group 3:**

The issue of information communication was not bad, however, all that the communities proposed was not respected. There is no single item from the community that was respected and taken into consideration.

Workshop data shows that the initial stage of community engagement with the REDD project was full of reflections from people's past experiences, which Kemmis et al. (2014) recommend as having potential for social learning: "It is an achievement secured by human *practice* – the practice by which we secure and stabilise the world of today as continuous with the world of yesterday, and as the precursor of the world

of tomorrow." (p. 2, original emphasis). The reflections on past experiences in the Pugu and Kazimzumbwi community displayed community potential for social learning processes and essentially enhanced possibilities for informed social change. Chances of learning were improved in collaborative reflections of past experience, as evidenced by data from the focus group discussion displayed in Box 6.1, where participant 2K1AM acknowledged clarity of matters after he engaged in a reflective discussion with colleagues in the workshop groups. After his new, clearer view of the matter, he was able to establish that the local community was at the end of the day a loser in the participatory forest project saga at Pugu and Kazimzumbwi forest reserves. His attitude suggested that people gained clarity of issues as they listened to one another, through understanding each other's perspectives, and being empowered by having others around (Muro & Jeffrey, 2008).

*6.6.1.2 Learning under constrained collaborations*
Workshop data, like the interviews, focus group discussions, and analysis of archival documents, indicated constraints in social-relational collaborations among REDD stakeholders. These constraints could impede social learning processes that emerged from praxis and the enthusiastic start of the REDD project. For instance, the community speculated about contradictions in power relations among NGOs, government institutions and the donor agency, and associated this with premature termination of the REDD project, as expressed in section 6.3.3. The research also identified that the grassroots actors that seemed to cope with REDD project undertakings were also unhappy with other stakeholders, especially state actors who , they felt, were not serving community interests in the project, as shown in the quotes in Box 6.8. If such claims were not explicitly and collaboratively dialogued among stakeholders, as a researcher I might inductively assume a possibility of learning constraints among REDD actors for the project in the Pugu and Kazimzumbwi community. The research also assumes a lack of mechanisms to mediate the emerging learning tensions across different actors within the REDD stakeholder partnerships, as also expressed by the quotes in Box 6.8. The REDD project mechanisms seemed to lack structures for governing feedback from social entities essential for balancing ecological objectives and social-relations. Feedback, such as people's doubts, complaints, diversity, misconceptions, concerns, and institutional hegemony, could help inform grounds for revisiting contractual agreements, practical conditions in the

context, power relations and stakeholders' positioning, stakeholders' performances, responsibilities, and accountability (Cundill & Fabricius, 2010). Pahl-Wostl et al. (2008) suggested that most problems in managing ecological systems normally have little to do with ecological planning, but are rather linked to the management of social issues.

> The problem that we face when we deal with sustainability lies not so much in our lack of understanding of the functioning of ecological systems, but in our lack of understanding of the governance and cultural systems and how they are structured and managed and interact with ecological systems, and how we produce science and knowledge for policy. Social learning entails developing new relational capacities, both between social agents, in the form of learning how to collaborate and understand others' roles and capacities differently, and also between social-ecological systems (sustainability learning). New institutional arrangements are needed to structure the more sustainable relationships, based on new framings of the issues at stake and the agents involved. (Pahl-Wostl et al., 2008, p. 3)

*Box 6.8: Some quotes showing stakeholders' contradictions and the lack of mechanisms to manage them*

**Workshop Group 3:**

Effectiveness of local leadership in terms of local institutions. The institutions or activist groups that played as 'broker' for serving community interests (a) were poorly; leadership did not serve community interests. (b) The leadership was a source of antagonism between the forest patrol committees and the community group that was against the project.

**Workshop Group 1:**

Tenure over the resources; poor – we don't have any authority over forest resources. Property ownership is not real and so the community doesn't benefit from the forest. There is no justice and no right.

**Workshop Group 2:**

Trust building; the project was not transparent; we didn't know the value of the project and the timeframe for the project. Poor; there was no common understanding, and no common framing of objectives.

**3MSK**

> As we planned to engage more in the REDD project, they suddenly stopped …
> We planted trees inside the Kazimzumbwi forest reserve. They introduced other
> good ideas. They promised to facilitate beekeeping and butterfly farms in the
> forest reserves. They also promised vegetable gardening in farmlands, but they
> … just stopped.

The quotes in Box 6.8 support Hart's (2004) suggestion for essential dialectic debate in social-ecological system management, in which ecological demands must balance out the challenges of change processes. Hart (2004) advised projects such as REDD to address change drivers of their projects (the people's agency for making change happen) with equal importance as they progress with ecological practice (what they want to change in the ecology). He described dialectical debates as emerging between the ecological perspectives and the change perspectives of the projects. Issues of social-relations in the REDD project, indicated in Box 6.8, were part of natural debates happening in support of the advancing ecological reduction of greenhouse gasses through a multi-stakeholder mechanism of the REDD project. He argued that such dialectic between social relations and ecological planning provides healthy conditionsin which projects must frame structural processes to support both goals (Hart, 2004). Such an approach, Hart (2014) suggested, could open forums for adjustments and re-theorisation of project plans, e.g. integrate the REDD project with a facility for mediating stakeholder relations. As evidenced in the data, such a facility would help state actors know what the PKFR community felt about them when and why, and vice versa. Each stakeholder in the project would have space to self-examine, plan and reason what, how and why they do, with respect to others. Pahl-Wostl (2009) suggested institutional structures be used for managing stakeholder learning. She describes this as "the learning to manage by managing to learn" (p.49). Managing learning processes in the REDD project at PKFR was a principal demand that may have been taken for granted by the output of "advocacy, education, awareness campaigns", as explained in the project proposal for piloting REDD in the PKFR community (WCST, 2010, p. 21). By addressing learning management, Pahl-Wostl (2009) emphasised the significance of governance frameworks that integrate social-cultural system interactions as learning mediatory conditions necessary for ecological management. Data from all sources for instance did not reflect social-cultural mediation for managing learning, as literally stipulated by the REDD+

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production chain in Figure 1.3(further discussed in Chapter Seven and Chapter Eight). The *regulatory and governance* unit of the production chain (Figure 1.3) was supposed to actively engage dynamic learning cycles throughout the REDD+process rather than assuming prescriptive frameworks and guidelines.Social, cultural and political contradictions such as those observed in Kimwani village (section 6.6.3.1) may reflect inefficiency to link grassroots issues with national frameworks for regulation and governance of local forest resources. This entire argument summarises the significance of ecological planning to integrate conditions for learning in order to minimise learning gaps that may jeopardise ecological achievements, as seen in both PFM and REDD at PKFR community (see sections 5.7.2.3, 5.10.4, 5.10.5, 5.10.6, 6.3 and 6.5.4).

### 6.6.2    Social change, agency and transformation

Social learning, by virtue of its iterative and generative ontology, is an ever-emerging process. Social learning may continue to reform as people engage in doing activities, in thinking, in talking, and in forming social relations. Evidence from PFM project interventions in the four columns of Table 5.2 showed that the different timelines of PFM interventions reshaped the local agency for learning and social change. The main challenge in agency formation was identified by Lotz-Sistka (2012) as guiding the direction in which the reformed agency may orient changes. In the Pugu and Kazimzumbwi community, this challenge may have affected both PFM project and REDD interventions, since it seemed that the changes that occurred in agency could not necessarily meet the end goals of the projects, as shown in the quotes in Box 6.9.

*Box 6.9: Quotes showing indeterminate direction of change agency*

**Interview held in first round of interviews when REDD was still active:**

**Interviewer:** How do you see the people of Kisarawe now that REDD is progressing most of the PFM objectives? Do you think they have changed?

**Participant 2K1AD:** (With a smile) No, that is not possible, ("hilo swala halipo"). People are doing this for the sake of … waiting to see if there is a better outcome. In fact, there are no changes … I can't see anyone who has changed a hundred percent. Once everything ends, life will go back to 'normal'. That's what I think. You know why … it is now calm and yet … people want to see what plans these people (the government) have for us this time…

The fact is ... with three or four trees, you are sure of providing food for your children for some weeks. Some of us have moved to sand mining and so we can overcome temptations of falling trees, but for our colleagues who must survive of charcoal business … it is not possible to stop.

**Participant 2K1AM:** I visited a friend in the Chapakazi region (not the real name) in the eighties. Women in that region wake up at 5:00 am to start working; they carry loads of farm produce and fodder. People in that region didn't have water but they used the little water they had very efficiently for irrigation. I couldn't believe, with all the water we had, by then, we did not do even have a quarter of what they had …

We visited Nguvukazi region (not the real name) for a cross-learning visit. We saw people own large farms of trees. Those people, I tell you, they work hard. It was amazing how an individual can own such a large farm of trees … and can you imagine how much money they get from selling trees? Amazing! With my eyes … I have seen with my own eyes! A school had its own forests, individuals had forests, and a village had forests … Oh that was amazing!

**Interviewer:** Do you think people can change if they see that?

**Participant 2K1AM:** Ah! Mama, coast is coast, you can't change it. People don't want changes. If you work like them (the inland communities) people will despise you.                                     People don't want changes here … people are used to sit and relax worrying about no work. Yet, if you let your wife work like the women of Chapakazi … (laugh!) It is not possible here! … You will look silly.

Kemmis et al. (2014) examined the challenges of managing social practices and advised change managers to control change by making significant impacts in the arrangements of conditions for change and sustaining the conditions that support the change. According to the two instances in Box 6.9, the learning that occurred was not good enough to cause significant changes in people's social lives or transform practices at Pugu and Kazimzumbwi. The quotes in Box 6.9 show a lot of contextual-related conditions that may not easily be managed without a focused social analytic tool. Despite biophysical conditions, like water, land and other resources, the quotes strongly emphasise culture, beliefs and traditions, symbolic issues, philosophical issues, socio-political issues, social histories and economies. All these conditions are interwoven in the real drivers for change. Kemmis et al. (2014) suggested that the turning point for changing forest management practices must be controlled through

transforming the existing arrangements in physical materials, social-cultural systems and interrelations that take hold from the existing practice in place.

> That is, we cannot transform practices without composing new ways of understanding the world, making it comprehensible in new discourses; without construction new ways of doing things, produced out of new material and economical arrangements; and without new ways of relating to one another, connecting people and things in new social and political arrangements – all 'bundled together' in new projects... (Kemmis et al., 2014, p. 6, original emphasis)

Interview data in this research also suggested an enduring change system that can make significant transformations and hold the conditions for transformed arrangements in place. Through this research, I explored people's feelings about possible ways of changing practices at Pugu and Kazimzumbwi.Some of the responses are presented in Box 6.10 below.

*Box 6.10: Some quotes suggesting ways of changing practices in the PKFR community*

**Interviewer:** Uhm, if there is any chance for changing … what's your suggestion?

**Participant 2K1AM:** I think if people were engaged deeply enough to be able to really see the impact of changes, see the benefits and be able to sustain it in life … I think people could change. People want to see surprising success … and say … "Aha! So it is true, it works!" People want to see the 'fruits'.

**Participant 1N1RF:** There is a need to have a better and truly sustained relationship between forest authorities and the community. If the forest authority takes this relationship serious, people will see the value of guarding forest reserves. Outsiders may not have the chance to invade local forest areas.

**Participant 1N1HO:** There must be a connection between what we did in PFM and what REDD is doing now. They must involve us. The new forest committees must involve the older members of PFM committees. They must know what we already did, and how we did it.

**Participant 2K1AD:** Education to youth. The young people in the village don't care about forests values. Once they finish class seven, they do not go to secondary schools and so engage in forest activities. Parents must also be forced to take the children to secondary schools. I think the government must intervene.

**Participant 3K1AM:** In terms of environmental awareness, we have had enough. We have enough forest education in our village. Now we want the government to let us own the forest reserve and they will see the outcomes. The government has failed to manage forest reserves and we can do it. You will see changes.

As shown in the quotes in Box 6.10, some local people's perspectives expressed awareness of some of the conditions for learning and agentic change managing new practices.This is how some of the local people perceived things: that a practice must strike significant changes, the changes must be  sustained, the practice must endure new arrangements and relationships and must also invest in social-cultural transformation, such as formal education, and socio-political regulations, such as forest ownership issues and terms of land tenure.. Muro and Jeffrey (2008) suggested that such conditions could constitute drivers for social learning and social change, if they were rightly nurtured through enduring learning cycles. They therefore recommended stakeholders to critically learn and understand the course of development projects and reflect on the bearing of change towards value systems. They then described transformative learning in resource system management as follows:

> Transformative learning describes a process where people gradually change their views on the world and themselves. Such a transformation often occurs in response to an external 'trigger', when faced with a disorienting dilemma. These dilemmas or anomalies cannot be explained by old ways of knowing and eventually lead to critical reflection and perspective transformations. (Muro & Jeffrey, 2008, p. 330, original emphasis)

Transformational adaptation to climate change and other challenging grounds was advocated by recent scholars, such as O'Brien and Sygna (2013), Jones and Carabine (2013), Wals and Corcoran (2012), and Smith (2008). The framework for transformational adaptation to climate change challenges, as explained in section 2.6.6.4, was underpinned by integrated social-cultural conditions. Social changes and transformational adaptations through the REDD project as well as the PFM project at Pugu and Kazimzumbwi community were constrained by undefined structural mechanisms for governing changes, as reflected in Box 6.11. Wals et al. (2009) assumed that the process of social change and transformation is based on enduring the iterative and multilevel social learning processes, which the two projects were unable

to endure. This is evidenced in the third column of Table 5.2, which shows that the PFM practices did not endure the learning challenge of joint management agreements. Similarly, Table 6.1 shows a one-year challenge of enduring social learning processes in REDD project mechanisms: changes and transformations were not achieved. The data in Table 6.1 seems to lack a social learning back-up facility, which Wals et al. (2009) suggested is essential.

> Whether or not social learning is successful depends upon the quality of the process and, with that, the quality of the process facilitator. He/she must be able to do virtually anything. … And so a team of which the members offer complimentary (facilitation) skills will generally be required. … The trick then is to uncover these qualities and mobilise them. … Participants in social learning processes often want to discuss matters with one another on equal terms and it is not always appreciated if someone from the group, no matter how much expertise he or she may have, takes the lead and rises above the group for the sake of leading the process in the right direction. It is therefore often advisable to call in a process expert who is not part of the group, but is still accepted by everyone. Process facilitators who only care about the process and not about the content often become too distanced from the participants to adequately carry out their task. (Wals et al. 2007, pp. 17-18)

Wals et al.'s (2009) suggestion is relevant to many of the raised concerns in Pugu and Kazimzumbwi, as expressed in all sub-sections of 6.3 and 6.5.3 and as evident in quotes in Box 6.7 and Box 6.8.

### 6.6.3   Learning reflections in the three sub-sites of the research

The evidence from research interactions, including physical observation, document analysis, focus group discussions, and reflexive workshops, shows the differences in learning landscapes across different locations of the research site as summarised in Table 6.3. This indicates that different locations in the community surrounding Pugu and Kazimzumbwi forest reserves result in different learning experiences from the same participatory projects. Thus, in this research I observed contextually related facilities for learning, agency and social change. My aim was to understand possible forms of learning in the sub-sites and the influences of each localised learning experience on other sub-sites.

*Table 6.3: Differences in contextual conditions for learning in the three sub-sites*

|  | Sub-site I | Sub-site II | Sub-site III |
| --- | --- | --- | --- |

| Geographical location (Map Figure 4.1) | Located to the Eastern side of the research site, belonging to Dar es Salaam. | Located at the central most part of the research site, hosting the district headquarters. | Located to the south-western part of the research site, bordering the neighbouring district through another forest reserve. |
|---|---|---|---|
| **Social-cultural perspectives** | High population dynamics and social-cultural influx through influence of near-by city centre. Life is characterised by marginalised street lifestyles. | Localised influx due to presence of headquarters, e.g. government offices, town centre, business population and some employed people. | Little influx from outsiders on a permanent base. Almost homogeneous population. Outsiders visit and leave. It is a typical rural life. |
| **Leadership perspectives** | Difficult to meet leaders to discuss forest issues in locations. Leaders were either too busy with political issues or were not interested in forest management issues. | Leadership was formally accessible. Leaders expressed political difficulty in managing the location as a village community with township traits at the centre. | Leadership was formally accessible. Leaders could easily organise learning events in the population. Local politics may transpass the location. |
| **Interests and forest learning** | One location declined to participate in the research (Kimwani). One location willingly took part in the research (Nyeburu). | Three locations willingly took part in the research. This included the sub-villages of Bomani, Vigama and Umatumbini. | Two locations willingly took part in the research. This included the villages of Kisanga and Maguruwe. |

*6.6.3.1 Learning oriented to geographic locality*

Section 4.4.1.2 and Table 4.1 indicated that one village of Kimwani from the Chanika ward in sub-site I could not participate in the research process for reasons related to context-based complications. The population groups in sub-site I were located on the eastern margins of Kazimzumbwi forest reserve, along the Chanika road on the western margins of Dar es Salaam, as shown in the map of Figure 4.1. Kimwani street location (not marked in the map) was part of the locations that fell under the administration of Chanika ward, through which the paved Chanika road traverses. Both Kimwani and Nyeburu Street locations are administratively located in Ilala Municipality of Dar es Salaam region, as indicated in Figure 4.1. Mdemu et al. (2012) identified high rates of unpredictable heterogeneity and human mobility in the population of the Chanika ward. According to their research such heterogeneity may

impact on social learning. Maxwell (2012) described emergent forms of diversity conditions that may limit contiguity coherence, necessary for solidarity in a location. Such forms may also include unpredictable heterogeneity, high rates of population influx that limit learning from each other's differences, and appreciating each other's contiguity. Data from focus group discussions indicated that the population in sub-site I was influenced by popular minorities, who were land activists. The data also shows that the influx of outsiders that moved to Chanika and purchased plots of lands inside Kazimzumbwi forest reserves was considerable (see Box 6.11).

***Box 6.11: Some quotes from focus group discussions indicating influx of outsiders in Chanika ward***

**Participant 3MSK:**

The forest dispute in Chanika is historical, it existed from long ago … most of the native population had moved from the site after being paid off by the government. The guys that claim to have land in the forest reserve are not natives of that area. They invaded the area and made themselves popular. They mobilised violent actions against conservation activities … they use media to cover their claim stories. The public gets wrong information … They are few people and are doing it for personal benefit.

**Participant 3M2SD:**

If you happen to see the leader of the activist group you can't believe he is the one!  The guy is just a small person … but he has money, I have seen him several times in his 'Rava' (Rav4). He makes good money by selling plots of lands to outsiders who actually do not know about the boundaries of the forest reserve. I have seen women … come to buy land, they are not from here … they go … they buy plots … and they hire people to clear trees.

The diversity in population groups in a location may also lead to "an irreducible plurality of standpoints", as described by Muro and Jeffrey (2008, p. 338).  This may weaken solidarity and plurality in progressing issues that are not beneficial to powerful minorities, however much loved by the majority. The progression of national forest reserves may not be appealing to activists groups that sell land from forest reserves, because there is little return in terms of personal benefits. Mdemu et al. (2012) researched the adjacent community of Pugu and Kazimzumbwi and

expressed the possibility of weakened rationality in assessing production-consumption value chains in areas of the Chanika ward due to urban influence.

> The growth of peri-urban areas involves a complex adjustment of social and ecological systems as they become absorbed into the area of the urban economy … Most importantly, urbanisation changes lifestyles ultimately associated with demographic transitions, increasing expectation about consumption, and potentially a weakened understanding of production-consumption relationship. (Mdemu et al., 2012, p. 55)

Mdemu et al. (2012) suggested that populations, such as the Chanika populations, are vulnerable to negative impacts of social-ecological interactions. They mention the impacts to include invasions in ecological structures, e.g. altered ecological land use, biological diversity, and degradation of natural resources, as is supported by quotes in Box 6.11. Other empirical evidence from interview results and direct observations indicated that some population groups in sub-site I area of Chanika are popular for induced forest fire, vandalised forest structures, uprooting of planted trees, and physical violence against people who work for forests.

*6.6.3.2 Learning oriented to forestry dispositions*

The research interactions with the Kimwani population, through the Chairman's office, was different from the interactions in other research areas. Kimwani village declined to participate in the research after several attempts at negotiation between March 2013 and May 2014. Through mediation by an individual (participant 3MSK) from the neighbouring village Maguruwe, the research team secured an appointment to meet Kimwani village chairman on 27 August 2013. On arrival at Kimwani, there were several people in the office who did not introduce themselves making it difficult to know who the chairman was. The dialogue in the chairman's office was difficult and was dominated by defensive attitudes and reluctance to engage in further negotiations about the research: "Madam, there is neither forest in Kimwani, nor the entire Chanika ward and so your research is not relevant to this area".

After several telephone negotiations and through mediation of the Ward Executive Officer of Chanika, I made another move to seek Kimwani's voluntary participation in the research. On 16 May 2014, I visited the Kimwani chairman's office and met a Village Executive Officer. The Village Executive Officer warned me (unofficially) about proceeding with my research in the Kimwani area, saying it would never work:

"no one would want to hear anything concerning forest reserves here in Kimwani …
If you want to push your agenda forward … try it and you will see". She promised to
arrange a meeting with the village representative council in the following week. As a
researcher, I was primarily warned by research informants in 2012, not to involve the
Chanika ward in my research. Thus, I refrained from arranged meetings. It should
also be noted that my research was given consent from the Regional Administrative
Secretary of Dar es Salaam, the District Municipal Director of Ilala, and the Ward
Executive Officer of Chanika, where Kimwani is located.

### 6.6.3.3 Learning potentials from existing experience

I finally decided to drop Kimwani village from voluntary participation in the research.
However, I saw the potential for using Kimwani's forestry experience to explore
learning relationships across the three research sub-sites and how the relationship
provides feedback to sub-sites. The rejection of my research agenda in Kimwani
Street of Chanika ward pointed to contextual conditions that generated forest agency
in Kimwani and had an effect on other nearby localities. An analysisof data from
project reports on participatory conservation in Pugu and Kazimzumbwi forests
indicated that the Chanika population opposed forest reserve boundaries. This is also
supported by direct communicationwith the project manager for the REDD project
who described a government order for evacuation of people who had settled inside the
Kazimzumbwi forest reserve at the start of the REDD project (E. Nyanda, personal
communication,April 2012). Another direct communication with local police office in
2012indicated evidence of group conflicts among members of different village
communities engaged in the REDD project. The district police were involved in
patrolling the project site around the Chanika area and arresting the 'bad guys' (OCD
Kisarawe, personal communication, January 2012). Within the first six months of the
REDD project activities in the Pugu and Kazimzumbwi site, two police cases, file No.
IR691 and IR692 were handled at the Kisarawe police post.

The learning potential insome of the research sub-sites appeared to have been
conflict-based and associated withnegative experiences in which the REDD project
was viewed as a win-lose intervention. This explains why population groups at the
Chanika ward regarded conservation communities as enemies and vice versa. Data
from interviews and group discussions identified that some of the activist groups from

Chanika ward attacked the REDD groups while in the field, as evidenced in the quotes in Box 6.12.

***Box 6.12: Quotes showing some group conflicts following the boundary dispute at Kazimzumbwi forest reserve***

**Participant 3M1ML:**

I was standing there, and there was a forest fire. I did not go to extinguish the fire … I let the men go. The activists were coming from there (pointing in a direction), they were holding machetes and other weapon … coming to fight people who extinguished the fire.

**Participant 3MSK:**

We were running towards the fire … to extinguish the fire in the forest reserve. We heard people calling us, telling us that the activists were running after us with weapons. I informed the project manager … he told us to escape and run away from them.

Baker and Baker (2002) attributed the boundary conflicts at Kazimzumbwi forest reserve to an outstanding issue between the government and local people at the Chanika ward. They recalled several meetings held between 1994 and 1996 to negotiate a solution to the boundary conflict. Baker and Baker (2002) believed that this boundary issue would escalate problems in forest reserves, as the government authority did not end it. For instance, they considered this dispute to be a weakening point in addressing local invasions in the reserve anda reasonbehind haphazard land grabbing in the Kazimzumbwi reserve. The boundary dispute case has fuelled antagonistic relationships (over forests) among different population groups in the community. This may constrain social learning and change in the population groups, as they live in fear and anger. It may also constrain learning, as population groups feel there was no justice. Such feelings could affect either side in the dispute.

*6.6.3.4 Learning insights from local politics*

At the time of conducting this research, the REDD project had engaged the community in forest development activities and there were mixed public opinions on the boundary dispute at Kazimzumbwi forest reserve. For instance, the public witnessed media reporting on the ill fortunes of Kazimzumbwi forest reserve, indicating the forest was a 'victim of land assault' (e.g. Thome, 2012). To fuel public

opinion, the media insinuated corruption among government officialslinked to the Kazimzumbwi boundary issue. The allegations of corruption were directed at sector ministries who manage forest reserves and land allocations. Media allegations stimulated rumours on government intention to change the status of invaded reserve land to residential in lieu of settling the boundary dispute. The notion of settlement expansion into a forest reserve threatened some population groups that had obeyed forest reserve boundaries, since they saw little chance for them to benefit from the settlement expansion (see section 6.3.3.2 and the quote in Box 6.13).

*Box 6.13: Quote showing community speculations and threats regarding settlements in Kazimzumbwi forest reserve*

**Participant 3KSP:**

For a person like that (name of forest manager) to show reluctance taking action towards invasions … really we don't understand it. We wouldn't want to risk ourselves with invasion cases. That guy (the forest manager) is educated and he is paid for that. I am just volunteering … I don't want to lose my life for that. We love our forests, we wish it to be there but …

You know, there must be a hidden truth about these forests. Just from common sense, this forest reserve is near the city … there is neither giraffes, nor antelopes. It is possible they are planning to change the forest to human settlements or they are planning to deploy industries. It is not possible for lowly people like us to know about that.

… People from towns who know of it, may start buying land in the forest because they foresee to own that land when the land use is changed from forest reserve to public use.

In addition to forest issues, Kisarawe politics were brought to public attention further following leadership debates at district levels. The district commissioner was reappointed twice within the first twelve months of this research. Thus three different individuals held this presidential appointment within a year. Notwithstanding the actual reasons for changing top leadership in the district, political issues of that level

are likely to have had an effect on forest politics in Kisarawe. Such issues of national attention had not directly informed this research, although it was worth taking note of the political context that mediated forest talks, forest thinking, and thus local actions. Political contexts influenced community perspectives over forest issues as well as orienting agency towards the directions intended by the media. Political rumours in Kisarawe also linked district leaderships to forest resource management.

In summary, the peri-urban context, the boundary dispute, and the media political debates opened public discussions about the Pugu and Kazimzumbwi community. The discussions provided feedback in micro-politics at sub-site levels, where social learning was impacted by conflicting perspectives of forest reserve management. Muro and Jeffrey (2008) examined the impacts of dominant groups in learner communities. They identified a tendency of dominant groups to pull other learners towards their agenda, as evidenced in section 6.6.3.5. The experienced in-group dynamics within and between my research sub-sites contexualised community learning, agency and change in local politics: this implicitly mediated the learning that occurred in all three sub-sites.

### 6.6.3.5 Learning oriented to agency formation

Community members in the Chanika ward seemed to anticipate a better identity by associating themselves with Dar es Salaam, rather than with the community adjacent to the Kazimzumbwi forest reserve. The statement from a Kimwani community member who said "there is no forest in Kimwani" is an indication of community agency that preferred identification with the city. This however, is only one way of interpreting that agency. The proximity of the Kimwani location to Kazimzumbwi forest, the social-cultural systems, economic and historical backgrounds identified the Kimwani population as dwellers around Kazimzumbwi forests. The agency that claimed to have no forest could also be interpreted as showing defensive gestures and pretending, for some reason, to hide interests in forest conservation. Such agency from either dominant groups or the majority of a population may experience self-rejection and self-defence for advancing anti-conservation movements. Agentic power against forestry movements could also bring together a diverse population for a common political course, e.g. aiming at changes in conservation actions (Maxwell, 2012). Data from focus group discussions identified that the agency that rose against

forest reserve boundaries in Chanika was influenced by a minority from outside the community, as shown in Box 6.11.

Media played a role in building consciousness and raising public understanding of the boundary dispute, as shown in Box 6.14. The media, like any human constructed knowledge, was representing interests of specific groups in time and space. This could lead to different understandings of the same issues and so stimulate group agency for conflicting learning, as shown by the quotes in Box 6.14. Glasser (2007) identified that media, including social media, may passively engage people in actions by mediating their understanding on issues. He also noted the impact of a mediated understanding on converting agency to directions intended by the media (ibid.). For instance, one local media house publicised local forestry claims against the government, as expressed by participant 3M2S in Box 6.14. Although it seemed to irritate other population groups around Pugu and Kazimzumbwi, it also inspired public empathy with forest 'invaders'. An alternative media house drew public attention to forest invasions and public empathy turned towards perceiving the forest reserve as a 'victim' (see section 6.6.3.4). This shows how different community groups from different sides of the public interests perceived the boundary issue differently. The government, which at all times was at the centre of the boundary issue, was also portrayed differently by the media. The data from focus group discussions demonstrated the community's engagement in questioning, validating and learning from media politics, as explained by participant 3MSK in Box 6.14.

***Box 6.14: Box showing local people's engagement in questioning and validating media works for public good***

**Participant 3M2SD**

They [forest invaders] convened under that tree … in Chanika. They were talking and complaining about the government forest boundaries. It surprised me to see media people covering their stories.

… look how the government is acting … why should the government allow newspapers to make a positive image of forest invaders? I can't understand this.

**Participant 3MSK**

> The newspapers have nothing to do with the government.Those guys (forest invaders) went out to look for cheap newsmen … you give them little money and they publish your story. That's how it works. Most news goes public without government notice … it doesn't come from the government.

The participants' perceptions from the media partly reflected the power of media to influence learning and agency. It was also difficult to follow the line of change, since media influenced forest agency on both sides of the boundary debate in the community. The only visible line was the gap between the 'conservators' team (for the reserve) and the 'invaders' team (against the reserve).

This research presents what members of the Kisarawe community said, what they did and how this reflected on their perspectives on participatory projects, including the REDD project. This research cannot rule out the individual's perspectives as right or wrong. The interest of the research was to express the voices of the people in the PKFR community regarding participatory learning of forest management. The research process thus opened a window into individual feelings and reasoning and the causal-effects of the reasoning to learning in participatory projects and vice versa. It was hoped that such details would opena window into perceiving the learning conditions of the people at the PKFR community. The understanding of such conditions may advance new ways of imagining learning and changes to communities on forest issues, including the contemporary climate change crises. Equally important was for the participatory management tools to open dialogues about governance regimes between government authorities and communities in order to enhance social-ecological interactions.

*6.6.3.6 Summarised learning, agency, social change and transformation*
The connection between learning, agency formation, social change and transformation is elusive. The descriptions and learning arguments raised in Chapter Five and Chapter Six are summarised in Table 6.4 to show the links in learning, agency, change and transformation along the ±15 years of participatory forest projects in the Pugu and Kazimzumbwi community.

*Table 6.4: The links between learning, agency, change and transformation*

| | **Learning** | **Agency** | **Change** | **Transformation** |
|---|---|---|---|---|
| PFM project interventions | Meeting new world views, understanding the new ideas (section 5.7.2.1; 5.7.2.2). Active learning by engaging in activities. Acquiring new understanding and perspectives within social networks, groups, and shifts in practices (section 5.7.2.2; 5.9.1; 5.10.3). | Agency for obeying and understanding of forest rules (section 5.7.1.1). Agentive actions for advancing PFM ideas and praxis (section 5.7.2.3; 5.7.3; 5.7.4). Agency for income generation and market place culture (section 5.10.4; 5.10.6; 5.10.7.1). | Subtle changes in perspectives and occasional alteration of practices (section 5.7.2.1; 5.7.2.2; 5.7.4; 5.9.1; 5.10.3). Practice change as entity and not routine. Some constraints in social changes (section 5.7.2.3; 5.10.4; 5.10.7.2). | Processes of enduring transformations constrained by broken cycles of learning; learning feedback was not nurtured to bring transformation in the community; lack of strategies to sustain few changes that happened (section 5.7.2.3; 5.7.3). |
| REDD project interventions | Social learning was triggered by initial collaborations to mobilise community. Reflection of pasts. Hands-on in field activities and training (section 6.3.1; 6.3.2; 6.6.1.1). | Agency for critical thinking, reflections and validation of practices. Agency for actions to change past constraints – praxis (section 6.3.3; 6.3.4; 6.5.4.5). | Social change was constrained by inadequate mechanisms for REDD to align to adaptive co-management practices (section 6.5.2 and 6.5.4). | Transformations of people's practices for REDD agenda was constrained by gaps in institutionalising change processes (section 6.5.2; 6.5.3; 6.5.4; 6.6.1.2). |

## 6.7    CONCLUSION

The focus group discussions and the reflexive workshop provided insights and evidence of the influence of the REDD project mechanism on identified learning potential (see section 6.2, 6.3 and 6.4). The insights also provided evidence of learning possibilities that were enabled by REDD project mechanisms (section 6.3.1, 6.3.2), and the gaps that constrained learning in field practices (section 6.5.2, 6.5.3). Learning insights from Chapter Five and Chapter Six have enhanced the overall linkage between learning, social change, agency and transformation that transpired in participatory projects in the PKFR community, as summarised in Table 6.4. The linkage exists as a fragile connection that cannot always be expressed in empirical evidence, although I have sought to provide thick descriptions to help highlight it. The

chapter also expressed the different learning experiences of community groups based on contextualised forest issues in their locations. This exposed various potential for social change and transformations in the relevant sub-sites due to differences in drivers for agentic action associated with the sub-sites.

Chapter Seven will recontexualise the learning descriptions obtained in Chapter Five and Chapter Six using the theoretical frames proposed in Chapter Three. The theoretical frameworks constituteuniversally assumed perspectives that provide explanatory powers for deeper understanding of the learning insights.

# CHAPTER SEVEN: A THEORETICAL INTERPRETATION OF THE LEARNING PROCESSES OBSERVED

## 7.1 INTRODUCTION

This chapter uses the thick descriptions of evidence of transformative social learning from Chapter Five and Six to produce a theorised account of the evidence. The chapter recontextualises the social learning and transformative learning events that occurred or failed to occur at Pugu and Kazimzumbwi during the PFM and REDD project interventions. The evidence of learning, social change and transformation is first contexualised in social realist perspectives, as advocated by Archer (1995) (see sections 7.2, 7.3 and 7.4). The same learning interaction is again recontextualised in practice arrangements advanced by Kemmis et al. (2014) and Schatzki (2012). The two meta-theories are underpinned by realist transcendental ontology, described in section 3.2.1. Changes in forest events through structures, cultures and human agency are analysed using abductionwith a focus on the emerged learning and transformations. The three forms of practice arrangements (i.e. material-economic, cultural-discursive and social political) are used as alternative viewpointsof social-interactions in a distinctly diversified way (section 7.4.1 to 7.4.5). The meta-theories are used to consolidate a generalised learning argument that may be universally assumed fromthe Pugu and Kazimzumbwi forest reserve community.

Retroductive inferences are used to probe more deeplyinto the causality of learning as a social entity. Retroduction allows transfactual[16] arguments on causes and effects in the occurrence and existence of forest events and their implicationsfor learning, social change and transformation. Transfactual arguments give us some potential tendencies that are universally acceptable for explaining the social (forest) events in open systems (Hartwig, 2007). "Laws can only be universal if they are interpreted in a non-empirical (trans-factual) way … designating the activity of generative mechanisms and structures independently of any particular sequence or pattern of events" Hartwig, (2007, pp 86) Abductive and retroductive inferences of the conditions of learning and

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[16] Transfactuality is a mode of inference in social sciences that identifies various possibilities for hypothetical arguments that are characteristically linked to a particular concrete event. Such arguments go beyond the conditions of empirical domain to include the internal structures and mechanisms behind the occurrence and existence of social phenomena (Danermark et al. 2002).

social change therefore provide an explanatory critique in learning arguments as discussed in sections 4.5.1.2 and 4.5.1.3.

## 7.2.    FOREST CHANGES IN MORPHOGENESIS/STASIS CYCLES

Chapter Five annotated four chronological timelines from 2000, when the PFM project started in the PKFR community, to 2015, when the pilot project for REDD was to be completed. In a natural systemic life, such a timeframe of fifteen years may constitute several elaborative and reproductive cycles (see section 3.3.1.1), involving structural, cultural and agentic alterations in the community. However, in this research I have only identified two major timelines of morphogenesis/stasis processes to contexualise PFM and REDD project interactions. This was carefully considered in order to roughly represent major events of PFM as a first morphogenesis/stasis cycle and those of REDD as a second morphogenesis/stasis cycle. The analysis also accounted for the timelag between the externallyfunded PFM projects and the REDD project, during which there was no uptake of new forest approaches (see sections 7.21 and 7.22). This timeline between PFM and REDD was the timeline for routinisation of PFM praxis in the community as discussed in section 7.2.3. The PFM timeline is represented as $T^1A$ - $T^4A$ and the REDD timeline isrepresented as $T^1B$ - $T^4B$ in Figure 7.1.

### 7.2.1    The first morphogenesis/stasis cycle ($T^1A$ - $T^4A$)

The first morphogenesis/stasis cycle was presented in this research as $T^1A$ - $T^4A$. The timeline covered the structural and cultural conditioning that provided settings for PFM inception in the PKFR community. The structural and cultural conditioning ($T^1A$) included material and ideational conditions that enabled or constrained the people of Pugu and Kazimzumbwi to interact in PFM interventions. The structural, cultural and agency interactions occurred at time $T^2A$-$T^3A$ and were partly mediated by PFM institutional forms of structure as well as social-cultural systems that existed in the community, among other things. The interactions were also mediated by generative mechanisms constitutive of powers and liabilities within the interacting entities. These may not necessarily be tangible or visible to peopleand could, for example, include people's willpower for participation and their choices of action. The resultant elaborations or reproductions of the PFM interventions are presented at time $T^4A$. These could appear in the form of emerged structures or cultures and could also appear as reshaped individual/collective agency, as depicted in Figure 7.1.

*Figure 7.1: Diagrammatic representation of morphogenesis/stasis cycle A and B*

### 7.2.2 The second morphogenesis/stasis cycle ($T^1B$ - $T^4B$)

The second morphogenesis/stasis cycle was represented in this research as $T^1B$ - $T^4B$. The cycle hypothetically starts from $T^1B$, when the REDD project contributed in the formation of structural/cultural conditioning for new interventions. The conditioning of initial settings at time $T^1B$ was also influenced by elaborations of PFM structures from previous interventions. The REDD project is partly a product of elaborations from PFM ideas at a global level to be implemented locally. The social-structural/cultural interactions of the REDD project happened at time $T^2B$-$T^3B$ and were mediated by multiples conditions of praxis actions and the introduced REDD practices. The cycle at time $T^4B$ represents an unfinished point within the cycle, as shown in Figure 7.1.

### 7.2.3 Praxis – practice timeline

The timelines for the first and second morphogenesis/stasis cycles, described as A and B, are separated by a time lag of five years from 2005 to 2010, as was shown in Table 5.2. This time lag is located between the PFM and the REDD project implementations and represents the period when PFM practices were being normalised in the community. It is a time of learning praxis. During the learning praxis there were no newly introduced forest approaches by development agenciesinthe PKFR community. Kemmis and Mutton (2012) stated that such stages of learning include customisation of the newly learned practices in people's own practices. They identified the newly learned practices as normally fluidic and morphed. Kemmis et al. (2014) observed that the customised learning becomes praxis actions. Thus, the elaborated properties of the PFM interventions reshaped into praxis as they were customised in the community and people became informed of them. The praxis also constituted the structural/cultural conditioning of time $T^1B$ of the REDD project. In this research I refer to normalised practices as *Time of Praxis* (TP), for the sake of identification in the analysis, as shown inFigure 7.1.

## 7.3 ANALYTICAL ABDUCTIONS AND RETRODUCTIONS

In this section I reinterpret forest events and social learning events from the displayed morphogenesis/stasis cycles. The events are analytically abducted by social realist assumptions and theoretical conditions. The emerging learning from theoretical interplays of structure and agency is then examined througha retroductive analysis to find possible generative mechanisms that influence their occurrence and existence in place and time. Johnson and Duberley (2000) described the role of generative metaphors in analytic retroduction of processes, events and other social phenomena. They suggested that a metaphoric exploration of generative mechanisms provides deeper ways of identifying the underlying connections between social events, their effect, and their causes in practice (ibid.). They described the usefulness of generative metaphors in retroductive analysis by citing:

> The construction of an explanation for, that is, the product of the knowledge of the mechanism of, some identified phenomenon … (which involves) … the building of a model, utilizing such cognitive materials and operating under the control of something like a logic or analogic and metaphoric, of a mechanism, which *if* it were to exist and act in the postulated way would account for the phenomenon in question. (Bhaskar, 1989, cited in Johnson & Duberley, 2000, p. 155)

In this research I used metaphoric approaches in retroductive analysis of data in order to frame explanations, to compose knowledge and present a template for understanding phenomena, as suggested by Bhaskar above. To support the metaphoric approaches in critical realist research analysis, Hartwig (2007) described the role of metaphors as building *image schema*, which she claimed"provide the means by which we are able to conceptualise objects of investigation that we cannot perceive directly, particularly relationships amongst things ..." (p. 67).

Sabai's (2014) study on knowledge systems in coastal communities of Tanzania, acknowledged the role of metaphors in crafting meaning of concepts and processes for enhancing communication and learning in the context of community-based conservation. As in this research (see Table 5.2), Sabai (2014) identified extensive use of metaphoric language in coastal rural communities to communicate concepts, distribute knowledge, and describe ecological ideas. He also reported on substantive use of metaphors in communicative learning research in southern African research practices (ibid.). In this research I adopted a metaphoric analytic approach to offer explanationsfor social events and processes, as products of generative relationships that may not directly be experienced (section 7.3.1, 7.3.2.1, 7.3.2.2,

7.3.5). Generative metaphors were also recommended by Easton (2010) as useful in connecting social events with their relevant causes and effects.

### 7.3.1  Abduction inferences at T¹A

The time $T^1A$ in the first morphogenesis/stasis cycle represents conditioning of learning circumstances at the PKFR community before PFM interventions. The PFM project interventions were pre-dated by conditions for $T^1A$, which this research identifies in three main social entities, i.e. local community, conservation science and forest practices that existed in non-interactive relations (section 5.7.1, first columns of Tables 5.2 and 5.3). Forest/human interactions during post-independence were regulated by, among other things, strict rules, one-sided orders, scientific knowledge, segregation of traditional knowledge, punishments and obedience to government. Other contingents in the interactions were the availability of land, low human population, illiteracy, and little influence from a globalised and technological world. The invasion of loggers in forest reserves started to create another form of contingent relations between the local community and the centralised system of forest management.

Abductive analysis of $T^1A$ under social realist assumption identified a morphostasis cycle that involves a cyclic reproduction of social entities that maintain dominancy of the centralised management system. The social entities promote social-ecological relations that are controlled by a management systemsthat ensure one-way communication, prioritising science over traditional knowledge, imposing threats and maximising obedience through fearing punishments. Such interplays of power of relations may not allow dialogue, questioning or developing of alternative opinions, and so tend to reproduce the same kind of learning in ways that effects lead to causes and causes to effects.

A suitable metaphor for a generative mechanism in this kind of interaction is *jazz and dance,* where one side of a team is playing jazz and the other side is dancing. The dominant political economy in centralised management systems plays the jazz and the local community is dancing to the tunes. Only the jazz experts know how to mix instruments for good music. The dancers cannot choose the music, question or ask anything about how and why the music is played. Dancers must respond to the tunes of music by dancing, and in a way dancers enjoyed the music. Since the local community had nothing to lose (as there was plenty of available farm land), they became part of the conservation music and promoted this into heritage knowledge (Baskhar, 2011). As 'dancers' they did notseem to mind the music or the dancing.

### 7.3.2   Abduction inferences at ($T^2A$-$T^3A$)

*7.3.2.1 The early phase of ($T^2A$-$T^3A$) interactions*

The introduction of PFM, as described in section 5.7.2.1, reoriented interactions of community and forest management entities into participatory approach. The PFM introduction was based on a shared need for relationships. The interaction during the PFM introduction was generated by a metaphoric mechanism of *marriage.* In this marriage metaphor there was a balance of interests between two partners in need of each other. The partnership, operated by a marriage mechanism, was created because of the need for physical support, social security as well as sharing of resources. *Marriage* may also be inspired by love or spiritual need for the union of two personalities (Zukav, 1991 Bhaskar, 2011). In principle, marriage is a contractual agreement regardless of how much the people involved in the marriage need each other.

In the central government's approachto the communities of the PFM partnership,the centralised forest management was overstretched by the demands of centralised governance. The government was in need of a partnership to relieve stress from management demands. The government wanted a partner as physical support to share the load, reduce management costs, create social security over resources, and, of course,to share in benefits (see section 2.6.1). Local indicators of government pressure included uncontrolled forest invasions in forest reserves, such as Pugu and Kazimzumbwi, and also inadequate staff and finance for centralised management practices. Additionally, the government was undergoing macro-economic restructuring, which required government to partner with local communities in resource management. On the other hand, the community of Pugu and Kazimzumbwi was physically and psychologically ready to engage in a forestry partnership as a way of getting physical support and social security. For instance, they wantedto solve the issues of local invasions by outsiders (section 5.7.1.2). For the community the terms of benefits offered by PFM were better than the enslaving tunes that they had danced to for years. The community was ready to try 'marriage' in anticipation of love and spiritual growth.

In this research I have employed critiques of structural forms for causal explanation of various generative mechanisms through selected generative metaphors. Sayer (2000) explained that structures constitute objects or parts of objects that exist or act in favour of internal powers of causation. Therefore, "explaining why a mechanism exists involves discovering the nature of the structure or object which possesses that mechanism or

power …" (Sayer, 2000, p. 14). An example of a causal explanation of conditions that is embedded the structures in a marriage mechanism is presented in Table 7.1.

*Table 7.1: Representation of causal explanation in structure of 'marriage' mechanism*

|  | **The government** | **The local community** |
|---|---|---|
| **Powers** | Seeking partnership | Ready to form partnership |
| **Liability** | Overwhelmed by previous practices, physical needs and social security. | Overwhelmed by strict rules, anticipates better future and needs physical support. |
| **Structures** | Central government | Individual groups |
| **Mechanisms** | Marriage | |
| **Emerged events** | Both parties happy, motivated, active participation, common understanding, empowered, enhanced learning, and shift in practices (the SEP, CEP and PEP in Table 7.2). | |

The PFM timeline at Pugu and Kazimzumbwi was influenced by global ideologies for emancipation of the powerless and the voiceless. NGOs' interactions with the rural community were frequent and advocacy for basic rights and social justice was mounting. Consequently, the population of the PKFR was relatively higher than the population of T[1]A and access to farm land was reduced. Some examples of emergent properties of the marriage mechanism in terms of structural emergent properties (SEP), cultural emergent properties (CEP) and personal emergent properties (PEP) are highlighted in Table 7.2.

*Table 7.2: The SEP, CEP and PEP of the generative mechanism of 'marriage' in the PFM project*

|  | **Observable events** | **The emergent domains** |
|---|---|---|
| **SEP** | • Development of management plans<br>• Forest boundaries maps<br>• Draft by-laws<br>• Community forest reserves<br>• Forest trails | Management structures |

| | | |
|---|---|---|
| | • Income generating projects<br>• Community Conservation Banks<br>• Village Conservation Banks | Economic structures |
| | • Wildlife clubs<br>• Forest committees<br>• Ecotourism guide book | Social structures |
| **CEP** | • Developed social relations among community members<br>• Learning from each other, sharing knowledge, social networking | Relational systems |
| | • Gender inclusivity women-men dichotomy<br>• Women capacity in IGAs | Gender sensitivity |
| | • Metaphoric language, artwork, forest-oriented thinking | Language, symbols and discourse |
| | • Islamic faith enhanced forest caring | Religious systems |
| **PEP** | • Promotion of self-identity within activities, e.g. 'environmentalists'<br>• Enhanced self-reflections, reflexivity and intra-personal communication | Sense of identity, self-actualisation, willpower, critical thinking, reflexivity, etc. |

An example of emerged intra/interpersonal communication was notedin sub-site III, where participant3K1AM shared an intimate communication,revealing the agony of forest degradations. She explained her feelings about another female stakeholder from the project's development partners, "I cannot forget, Helena was overwhelmed when she saw the dead tree… she sobbed into tears! ...I remember that Helena …a white lady couldn't handle it …we went together with her … we witnessed the degradation… It was very painful". Archer (2007a) identified such moments when human 'contexts' interplay with human 'concerns' as effective in influencing internal conversations and reflexivity of people. Archer (2007a) appraised the significance in nurturing human thinking and talking for determining reflexivity and communication patterns. Elder-Vass (2007) also identified many of the emergent properties to occur at Personal Emergent Property (PEP) levels before they change to other relational properties.

*7.3.2.2 The later phase of the ($T^2A$-$T^3A$) interactions*

As the PFM partnerships in Pugu and Kazimzumbwi continued to grow, the relationships were implicitly influenced by a generative mechanism for which a metaphor of *perceived balance of responsibilities* (Easton, 2010) is appropriate. The generative metaphor of perceived balance of responsibilities is applicable where two entities have roles to contribute in development of their relationship in terms of capabilities, expertise, resources, back-ups, etc. In the case of the PFM in the Pugu and Kazimzumbwi community, both the government and the community were responsible for fulfilling roles in management practices for the partnership. Some liabilities emerged from a 'perceived balance of responsibility'.

The interview data indicated that the government regarded community members as accountable for local activities, like forest surveillance and firebreaks, as contributions to community welfare. Community members were, thus, not paid for these activities. The community claimed that PFM did not establish terms for payment of local people working in project activities, as shown in Box 7.2. Working in PFM activities was taken for granted as voluntary engagement of community members, who were given little apart from occasional lunch allowances. When the funded PFM project ended, the community could not negotiate payments with the government, since there was no dialogue and no contractual agreement between government and local councils or local people. The community perceived the government through PFM as responsible for instituting a formal scale of man-hour time to local people whowork in PFM local activities. Interview data shows that local peopledassume that the government (within the PFM partnership) should have paid for local labour. In terms of the 'perceived balance of responsibility' metaphor, some community members felt it was also the responsibility of the government to facilitate their individual skills following the development of these skills from training, as shown in quotesin Box 6.5. The data also claimed that incentives provided to individuals were not enough to drive changes in livelihood economy because some members believed community development was a government responsibility, as shown in section 6.5.3.4. Easton (2010) noted the existence of 'perceived balance of responsibility'in business management partnerships, where he observed confusion that emerged from the relationships when partners assigned responsibilities to each other.

**Participant 2K1AM:**

Local people used to work for PFM…little allowances could be provided. The terms of local payments were then proposed in the JMA proposals for the partnership with the government. Once they [the government] saw local people wanted payment, they declined to approve the JMA proposal…the issue started when the government declined to pay the guys. They claimed that the government cannot pay local people, because the forest is not for production.

The guys [young people in the community] turned to the forest …they colluded with outsider loggers. The local guys worked to assist loggers and they got paid. The government...the government has contributed to the degradation of the forest.

**Participant 3K1AM:**

They [the government]are letting us down. We agreed to volunteer for forest activities. We asked them to buy us field boots, they didn't buy any. We went to the forest with bare feet and we extinguished forest fires with bare feet. They don't care we also need drinking water when we are doing fire work.

**Participant 2K1AD:**

The challenge is allowances. We want to be paid allowances … especially the forest committees. Sometimes we spend three days on forest fires without working on other personal activities. We don't know as yet what they think about us. We keep thinking there may be a brighter future ("Mvumilivu hula mbivu").

Yes, other village members join in the fire work. People are very cooperative when it comes to fire … but to them it is less of an obligation compared to forest committees. We spend longer times in coordinating forest activities, especially on emergencies, like fires.

The implementation of the PFM project entered another level of mechanisms that fit a generative metaphor of *enacted balance of responsibility*. Easton (2010) noted that the mechanism of 'enacted balance of responsibility' exists when partner entities choose to use their enacted powers of partnership to seek a balance of responsibility. For instance,village councils were capacitated to develop JMA proposals in which the terms of payments for local people were included. The government, as an empowered prospective partner, chose to decline the JMA proposal. The government's liability appeared from inadequate funding after

the project funding was exhausted. Local community members'frustrations grew as they waited for more capacity building from government. This led them to lay down their tools for PFM engagements. It is also likely that the government became frustrated when the PKFR community demanded payment, did not use the skills they were trained in, and stopped working for the forest reserves. The two partners became divided in their relationship as tensions grew between them.

Easton (2010) described a situation where two entities may no longer resolve the problems of their own and neither understands what is going on withthe other. Sabai (2014) described it as a *closed door* mechanism when there is a communication barrier that hinders access to knowledge systems and learning between entities at different levels of natural resource management. In a 'closed door'mechanism, each side of the partnership may struggle to solve the problematic issues without accessing information from each other. Realising solutions to problematic issues may be difficult because the two entities must complement each other in resolving the problems. The closed door may need an opening mechanism that fits a generative metaphor of *key in lock,* where a particular arrangement of potential information or physical adjustments may regulate the system (Easton, 2010). If the 'key in lock' operates, the two partner entities may unlock doors, meet each other, discuss the troubling issues and resolve their problems. This could bring the partnership system back to efficiency. Easton (2010) used the'key in lock'metaphor to describea meeting forum for discussing and deliberating problematic issues. He also identified inter-organisational exchanges as a potential for harmonising organisational differences among partners.

What happened in the PFM case at Pugu and Kazimzumbwi represents an absence of key in lock. The organisational structure of the PFM project at Pugu and Kazimzumbwi community lacked a formalised organisation to represent community entity. The lack of structural organisation at local community levels was, therefore, a limiting condition for inter-organisational exchanges. Examples of power-liability relations that closed doors of efficacy between the two entities is summarised in Table 7.3.

***Table 7.3: Examples of power-liability relations for 'absence of key in lock' between PKFR community and the government***

|  | **The government** | **The community** |
|---|---|---|
| **Powers** | To advise the community, to facilitate programmes, to authorise terms, etc. | Demand government explanation, may choose to join forest loggers, etc. |

| Liability | Inadequate funding, declining JMA proposals, overwhelmed by demands, etc. | Unsatisfied about payments for skills and for livelihood, etc. |
|---|---|---|
| Structures | Central government | Individual groups |
| Mechanisms | *'Absence of key in lock'* mechanisms | |
| Emerged events | Dissatisfactions, likely on either side of partnership, despair, tension, ending partnership, rejection, anger, complains, etc. | |

Some contingent conditions for this kind of relationship may include influencing factors of political economy, globalisation, information technology, andcultural diffusions. In this situation the local community and even the government structures may be threatened, as the fate of the partnership is uncertain. When PFM activities sought new trajectories, contrary to earlier plans and project expectations, the emergent properties served as indicators of feedback in the PFM system. However, the PFM system at Pugu and Kazimzumbwi could not cope with feedback responses and this allowed the system to dissolve.

### 7.3.3 Abduction at T$^4$A and TP

At time T$^4$A, the elaborations of the first morphogenesis/stasis cycle was informed by the Structural Emergent Properties, Cultural Emergent Properties and People Emergent Properties that were formed during the early stage of PFM interventions (section 7.3.2.1). Time T$^4$A was also informed by the emerged events of the later stage of PFM intervention, indicated in Table 7.3. T$^4$A was followed by the Time for Praxis (TP) actions when community groups routinised PFM field experiences in their local practices and the government institutionalised PFM into mainstream practices. The PFM financial support from external donors was reduced and the government operated on a limited budget. It appeared that both the government and the community were trying to optimize the lesson learned from the experiences of past PFM project activities at the site. The conditions resembled a generative mechanism of *prisoners' dilemma.* The prisoners' dilemma is a management scenario in which two well-informed entities tend to apply the right strategies to a common resource in advancing the best conditions for success without cooperating. Webster (2013) used the prisoners' dilemma metaphor to describe sustainability thinkers who are individually committed to sustainable environmental practices. The logic behind the metaphor is simply that the sum of the parts may not equate to the totality of the parts. As Ostrom (1990) described it:

the prisoners' dilemma is conceptualized as a noncooperative game in which all players possess complete information. In noncooperative games, communication among the players is forbidden or impossible or simply irrelevant as long as it is not explicitly modelled as part of the game. If communication is possible, verbal agreements among players are presumed to be nonbinding unless the possibility of binding agreements is explicitly incorporated in the game structure. (p. 4)

The only exception withthe 'prisoners' dilemma' condition in the Pugu and Kazimzumbwi case is that the government was capable of freeing the situation if it had chosen to, whereas typical prisoners are not able to influence the situation.

### 7.3.4  Abduction inferences at $T^1B$

The second morphogenesis/stasis timeline started at $T^1B$ with the inception of the REDD project. Thus, time $T^1B$ conditioning was informed by a combination of REDD practices and the previous structural elaborations from $T^4A$ and TP ($T^4A$+TP+REDD practices). This timeline was predominated by field experiences in participatory practices and praxis. The community acknowledged the potential of the REDD project agenda for achieving sustainable management in forests by reflecting on past field experience. The dominant generative mechanism in time $T^1B$ matched the metaphor of 'praxis actions', as described in sections 5.7.4, 6.3.3 and 7.2.3. Lather (1986a, 1986b) described the process of adhering to the prevailing praxis as enabling human consciousness in relating to other human beings and to nature. She described the social orientation to praxis as a search for emancipation and social transformations. Time $T^1B$ conditioning was also influenced by government informedness of the existing PFM praxis from previous donor supported PFM activities. Data from interviews and focus group discussions show that the government also sought to take practical actions to advance best field practices of PFM. For instance, the community claimed that the government recruited a forest manager for the national reserves to base at the Kisarawe district office. This indicates government's struggle to link government management practices with local practices since the manager worked for central government. I noted the involvement of the forest managerin mediating local activitiesin section 6.3.3, as forest committees reported matters of forest reserves to the manager.

### 7.3.5  Abduction at $T^2B$ –$T^3B$

The structural conditioning of time $T^1B$ provided the structural/cultural and agentic space for extending $T^2B$ to $T^3B$ interactions. Agentic actions during the REDD intervention, which

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lasted for approximately one year, included extensive mass mobilisation, refabrication of local committees, tree nurseries and tree planting campaigns. The interactive agency from local community that encountered the REDD project was different from the local agency that embraced PFM for a 'marriage' (section 7.3.2.1). The encounters with the REDD project were generated by a mechanism that was informed and consciously reflected on past experienceswith partnerships. The meeting of the REDD project with community perspectives was generated by a metaphoric mechanism that fits *seller and buyer* negotiations (Easton 2010). In a seller and buyermechanism*,* the seller offers a product by defining a good deal. The seller has experience in selling the product in other places and so is an experienced dealer with confidence on the tricks of the business.  The buyer, who is also desperate for the product, may need to think critically before accepting the deal. The buyer may validate the feasibility of the deal by reflecting on previous experiences regarding the same kind of products. The buyer could also propose adjustments to some conditions of the business deal, if the buyer is smart enough to use that opportunity. The local community at Pugu and Kazimzumbwi could advise the REDD project on their preferred local arrangements. The REDD deal at Pugu and Kazimzumbwi was developedwith multiple stakeholders, but the final consumer of the product was the local community. Other stakeholders with interest in the deal acted more or less like 'brokers'. Brokers are middle people with an interest in the deal, who partly represent both parties. Brokers may mediate the deal in ways that areworkable and profitable for all parties involved, including them. Sometimes brokers lean more to the side that benefits them. This also depends on the ability of both seller and buyer to influence their terms and communicate them to the broker.

For instance, data from multiple sources indicates that the community of Pugu and Kazimzumbwi was not happy with the local arrangements for implementing participatory projects. However, the data shows that they were consulted during project development and the community did not explain how they communicated this to brokers. The REDD facilitator(s) may not be informed of local inefficiency and management complications unless the issue was brought up by the community. The *seller-buyer-broker* mechanism working in open community systems may complicate the project value chain if collaboration and communication among parties is not prioritised in the system. The community, as a beneficiary that was assumed to accept the project's arrangements, was not happy with the project's organisation.

The situation was even more complicated at sub-site I where the REDD project was explicitly opposed. The local population at sub-site I was a sceptic 'buyer' and they did not provide space for the trying out of ideas. The buyer may have rejected the REDD project deal because of unpleasant memories of past experiences in participatory businesses. Rejecting a deal may not necessarily have something to do with weakness of the current seller, i.e. the REDD project. It is a natural part of a project's liabilities that is often taken for granted in most business. Many reasons could steer the buyer's response towards rejection of the deal, including personal interests, ignorance or contextual constraints from local circumstances. Contextual constraints in the case of REDD project at sub-site I may include levels of social satisfactions and well-being of the population in the locations. It may also involve the impact of social comforts/discomforts, such as employability, social mobility, access to basic education, and experiences with diseases such as HIV/Aids. For instance, the boundary dispute may have occurred in a contingent relation with participatory business. The local people's agency at sub-site I consequently occupied marginalised locations of cosmopolitan Dar es Salaam, where the gaps in human well-being are intimately relevant. Daniels (2008) suggested that marginal populationsreceive developmental instructions from nearby centres of development. He suggested that a Zone of Proximal Development (ZPD) is created between a more advanced and a less advanced partner and that the advanced partner tends to assist the less advanced partner. Daniels (2008) claimed that advanced partners influence perspectives in framing of developmental references for less advanced partners. Therefore, the population at sub-site I would have looked more towardsand aspired to city life than rural forest life.

*Table 7.4: Causal explanations in 'seller-buyer-broker' mechanism of the REDD project*

|  | The government | The local community |
|---|---|---|
| **Powers** | Marketing REDD agenda; good package; better prospects for communities. | Question REDD products; sceptic; other agency decline. |
| **Liability** | Standardised national/global approaches; fulfilling of international obligations; prescriptive; mediated by trusted brokers; less control over brokers; little contact with a buyer; little feedback and collaborative links in production chain. | Local experience, context-specific constrains; coping with unfavourable terms; no legal binding; mistrust of brokers; no control over brokers; no direct contact with seller; no forum for collaborative negotiations with other actors. |

| Structures | Central government | Mobilised individuals and groups/brokers |
|---|---|---|
| Mechanisms | 'Seller-Buyer-Broker' | |
| Emerged events | Project pushed for a good start; community coped with sceptics; little understanding of actors' interests; performance is questioned; state actors unhappy; development partners unhappy; community unhappy; project stopped (see SEP, CEP and PEP in Table 7.5). | |

Wals (2013) identified problems that most sustainability projects faced when facilitating local activities from generalised project frameworks. Among the problems that he noted was dealing with differences in contextual realities across sub-regions and within countries of the same regions. Wals (2013) described different approaches that could help the sharing of local perspectives, facilitating learning processes, and enhancing stakeholders' engagement. How the project's interventions endure the planned log frame may depend on field processes, feedback signals from contextual circumstances, and the responses of those signals to ecological planning and vice versa. The theoretical abduction of the REDD project cycle (the second morphogenesis/stasis cycle) may be concluded at $T^4B$ when the project stops as the end of project cycle. Stopping the REDD project may, therefore, be regarded as a feedback mechanism that was co-opted by REDD to cope with local circumstances and thus lead to time $T^4B$ elaborations. The prevailing conditions and inputs of the project at time $T^1B$ created settings for project interactions at time $T^2B$-$T^3B$, which determined the project's output in terms of elaborations emerging at $T^4B$. Some of the emergent properties of structure (SEP), culture (CEP) and people (PEP) from the REDD intervention are presented in Table 7.5.

*Table 7.5: SEP, CEP and PEP from the 'seller-buyer-broker' mechanism of the REDD project*

|  | Observable events | Emergent domains |
|---|---|---|
| SEP | <ul><li>Knowledge and skills on carbon trading</li><li>Community tree nurseries</li><li>Fabricated sign posts</li><li>Fabricated guard posts</li><li>Cleared forest boundaries</li><li>Planted trees in forest reserves</li></ul> | Forest management structure |

| | | | |
|---|---|---|---|
| | • Knowledge on entrepreneurship<br>• Knowledge on carbon measurements<br>• Re-fabricated forest committees | Social structure |
| | • Local incentives and commissioned local expertise for skilled labour | Economic structures |
| CEP | • Revamped morale for forest activities<br>• Expectation for carbon trading<br>• Expectation for JMA agreement | Anticipations |
| | • Social-cultural relations in field activities<br>• Inter-generational contradictions<br>• Inter-group conflicts<br>• The global/regional-local dichotomy | Relational systems |
| | • Sceptics, reflections and questioning.<br>• Doubts on local arrangements<br>• Doubts on local project brokers<br>• Communication constrains among actors | Levels of trust and confidence |
| | • Metaphors like 'financial benefits' | Language and discourses |
| PEP | • Challenge-oriented thinking<br>• Analysing other project actors | Critical thinking and reflexivity<br>**1.1.3** |
| | • Conversant with policy documents<br>• Conversant with conservation processes<br>• Skills given were not feasible<br>• Incentives cannot offset local economy | Exercised agency, self-identity and self-actualisation. Will power to act on matters. |

Some of the most common Personal Emergent Properties that were observed from the field data included confidence in reading, public speaking and exercising personal powers. Evidence from interview data indicates that participants from both sub-site II and III believed they could manage the forest reserve better than the government. In one of the focus group discussions, a participant claimed that he could manage the Pugu forest reserve by himself if he was provided with facilities "I wonder why these people (the government) fail to manage these forests…This forest is very small (pointing to Pugu forest)… I can manage it alone, given facilities…" (2K2PB). Data from interviews indicated that many people wished the reserve forests could be entirely handed over to local communities for ownership and community conservation. Both women and men strongly believed they could productively manage the forest reserves without a bureaucratic partnership with the government. "We want the forest to be put under our exclusive management … give the forests to the community" (3K1AM). Such statements may express power of agency at the level of both individuals and the community.

However, the ability or inability of individuals to practise the skills and replicate the acquired knowledge in communities could emerge from various contingent factors, which may have less to do with the skills provided. For instance, the data shows there was plenty of farmland and weather suitable for agriculture, as is indicated by the many people that moved in from neighbouring communities in search of farmland. There is no evidence that the community's economy would perform better even if there was plenty of land and fewer invasions into the forest. The quotes in Box 6.10 are also supportive of community workmanship in terms of development and livelihood economy. Little workmanship in terms of livelihood economy could be a liability to the PKFR community, as indicated by 2K1AM in Box 6.10 as a causal-effect of false beliefs and attitudes.

Archer (2007) suggested that the intrinsic power of human agency was central in the construction of social-cultural properties and powers. She also identified that the power of agency could even falsify routinised assumptions or common beliefs held in societies. Danermark et al. (2002) identified that people's own conceptions of meaning and interpretations of things may determine their choice of actions. Arguing from a social research perspective, Danermark et al. (2002) emphasised the usefulness of those assumptions that are regarded as false conceptions in highlighting practice. The false conceptions are equally as informative to social research as the right conceptions (ibid.). The people of PKFR, through internalising forest issues and exercising self-identity have questioned, validated practices and deliberated on issues. The deliberations were based on their own ways of understanding and logical interpretations. In this research I cannot judge what they experienced and what they perceived as right or wrong. The research can only benefit from their learning logic.

## 7.4    GENERAL OUTPUT FROM MORPHOGENESIS/STASIS DISCUSSIONS

In this research I did not locate a significant social transformation from the morphogenesis/stasis cycles displayed in Figure 7.1. The changes in social practices were subtle and always limited to basic processes of change in understanding, with delayed or constraining effects in adapting to new practices. The relevance of morphogenetic/static cycles to Archer's (2007a) concept of traditionalism and reflexive modernity was reflected in constrained processes of operational changes after social objects were introduced in the community. Archer (2007a) described the systemic stagnation in operating reflexive modernity across societies. She identified trends in the morphogenetic/static model where the

process of influencing changes in society was temporarily slowed down by the contiguous occurrence of both cycles in space and time. In the case of Pugu and Kazimzumbwi, this reflects on both elaborations and reproductions of socialstructures and social cultural entities,mostly in unpredictable form of occurrence.

### 7.4.1 Morphogenesis/stasis cycles in the PFM project mechanisms

The first morphogenesis/stasis cycle of the PFM project started with a dominance of the morphogenesis cycle in which elaborative changes in Structural Emergent Properties (SEP), Cultural Emergent Properties (CEP) and People Emergent Properties (PEP) were evident (section 7.3.2, Table 7.1, Table 7.2). The agentic power to change social entities towards the direction of PFM was positively exercised and aligned to the direction of project objectives. As the morphogenesis cycle rolled to completion, some constraining conditions emerged, which, for instance, posed limitations to contractual joint management agreements. The constraints extended to limiting dialogical negotiations between partners. There was a series of constraints to morphogenesis elaboration that were basedon institutional structures, as shown in Box 6.1, and economic constraints, as shown in Box 6.5. Such constraints were reflected in the 'closed doors' mechanisms and the 'absence of key in lock'mechanisms, which did not allow for the advancement of elaborations in the PFM cycle. The PFM morphogenesis cycle endedup with morphostasis reproduction of PFM materials, without fully developing PFM products. Elaborative development of PFM products at Pugu and Kazimzumbwi was supposed to meet the end goal of the PFM project, which was to achieve Joint Management Partnerships between government and communities.

### 7.4.2 Morphogenesis/stasis cycles in the REDD project mechanisms

The second morphogenesis/stasis cycle, constitutive of REDD project mechanisms typically falls under Archer's (2007a) concept of reflexive modernity, where both cycles tend to hang together in an unpredictable manner. The local agency that engaged in the REDD project was willing to act for the REDD project while remaining reflexive in their courses of action. Archer described the effects of both morphogenesis and morphostasis interactions as influencing trends of change within an urban-rural dichotomy. Constraints to change in the REDD project mechanism were reflected in some of the emerged SEPs, CEPs and PEPs that indicated limitations for agentive actions towards REDD (Table 7.5). The project negotiations, through the 'buyer-seller-broker' mechanism, were constrained by social

relational conditions, as shown in Box 6.7, Box 6.8 and Box 6.10. These constraining conditions and many others were caused by institutional inefficacy in iterative learning cycles to support the REDD production chain (see section 6.6.2). The ending of the REDD project cycle at Pugu and Kazimzumbwi was a morphostasis, which could no longer reproduce the same products and ultimately stopped production. The intended transformations were not achieved because some conditions for inducing transformational changes in practices were neither significantly created nor sustained (Kemmis et al., 2014).

## 7.5    FOREST PRACTICES IN PRACTICE ARRANGEMENTS

Interactions of the Pugu and Kazimzumbwi community in Participatory Forest Management were also analysed using the three forms of practice arrangements in nature (Kemmis & Mutton, 2012; Schatzki, 2012; Kemmis et al., 2014). Section 3.3.2.3 described the three dimensions where practice arrangements appeared, as summarised in Table 7.6.

Table 7.6: Three forms of practice arrangements and the inter-subjective spaces provided

|   | Basic arrangements/orientations | Space provided in practice |
|---|---|---|
| 1 | Material economic arrangements | Physical space-time for doing physical and mental activities  (the doings) |
| 2 | Cultural-discursive arrangements | Semantic space for using language to think, to talk and to communicate (the sayings) |
| 3 | Social-political arrangements | Social space for people's relations with one another and with non-living things (the relatings) |

The three dimensions of practice arrangement constitute the necessary underlying mechanisms for a practice to occur.

### 7.5.1   Learning, social change and transformations through practice interventions

Analytical abductions through practice arrangements may illuminate the ever-changing forest events in forest management practices at PKFR, as identified by Kemmis et al. (2014). Evidence from interview data and focus group discussions indicate that there were constant changes in understanding and perspectives since PFM was introduced in the community (sections 5.6.1, 5.6.2, 5.7.2, 5.7.3, 5.7.4, 5.9.1). The data also showed that most of these changes were accompanied by subtle shifts in local practices in managing lives in forest reserves. Hargreaves (2011) stressed the significance of noting subtle changes on social

orientations and perspectives that include learning of ecological issues. He suggested that such little changes may account for significant changes in social-ecological practices if the learnt practice is consciously and repeatedly performed. The consciously repeated performance in the learnt practices at Pugu and Kazimzumbwi community could for instance influence the everyday learning of particular forest issues.

Kemmis et al. (2014) identified that the everyday changes alone, cannot drive significant social transformation unless an informed action is imposed to transform practice arrangements. The discursive social changes weregoodenough to change the understanding of the community through continuous forest intervention in people's social lives at the PKFR community. The community of PKFR naturally lived through various forest activity interventions that formed part of their daily lives. The people learn by living with forestry and doing forestry and change their understanding at different spatial-temporal times. Practice theory claims thatpeople never remain the same across a timeframe of interactions. The theory also claims that people never necessarily change or transform their social structures simply from changes of knowledge acquired. Kemmis et al. (2014) insisted that significant social transformations might not occur from the ever-changing practices of everyday learning.

### 7.5.2    Relevance of practices to realist social structure/cultural interactions

Analytical abduction of practices in process is relevant to the dynamic interactions of structure/culture and agency of the morphogenesis/stasis model. The enabling and constraining structural conditioning in morphogenesis/stasis cycles implicates the material-economic arrangements for the practices. The agentic actions may reflect the cultural-discursive thinking, talking, reflecting and deliberating of practice actions. Further agency in the morphogenesis/stasis cycle may be observed in people's identity and power relations as they take social-political positions in practices. The interactions through various socialrelationsin forest activities are also linked to arrangements of cultural systems through communicative language, symbols, ideologies and normativity.

The model of interactions in practice arrangements depicted inFigure 3.2,is relevant to the situation at Pugu and Kazimzumbwi community where new forest management approaches for both PFM and REDD stimulated changes through human interactions in terms of forest practice and/or praxis. The social-structural interactions at T²A-T³A and T²B-T³B of Figure7.1 are comparable to the three wheels in Figure 3.2 as the gear moved by spontaneous

doings, sayings and/or relatings in forest management activities. The change dynamics in the doings, sayings and relatings are also shown inFigure 3.3 where spontaneous interactionsalso reflect the ever-changing three orders of practice described in the concept of primacy of practice in reality Figure 3.4 for about 15 years of changes in forest management approaches. The wheels shown in Figure 3.2 could theoretically turn in either direction (clockwise or anti-clockwise) depending on the stimulant. For example, if individuals that perform forest activities were excited and motivated in the doings of the activities while talking positively about the activity, the wheels gain momentum and the activity progresses. The social relations of the people align to support the formation of the particular activity as dictated by the doings, the talks, and the thoughts of the people. Any introduced signal in the physical space-time could be reflected in the semantic and social spaces and vice versa, as reflected by the gears in Figure 3.2. Elder-Vass (2007) acknowledged that changes in properties in one social entity may turn to relational change, as also supported by Danermark et al. (2002), who described the vicious cycle of effects and event:

> As human beings we also register the results of our endeavours in relation to our goals. We reflect on them, and by means of language we can communicate, discuss and compare our experiences with those of others. As a consequence we may perhaps also change various things in our own practice and so make new experiences, which are in their turn communicated, and so on. (p. 28)

For example, as the community doubted NGOs' sincerity (section 6.5.3.5), their trust in NGOs was reduced and this must have affected their working relationships with NGOS. Altered relationships could alter working conditions, as evidenced in interview data where participant 3M1ML from sub-site III was concerned about (what she assumed were) outstanding payments that were not paid by one of the NGOs to local people (Box 7.2). This kind of claim can stop local people from working in the field and news such as this may change people's perceptions of the NGO. Thus, the practice arrangements represented by the gears in Figure 3.2 could change direction or could stop. In another instance, the community assumed that the stopping of the project's wheels was caused by contradictions among project actors at the state level.

***Box 7.2 Quotes showing examples of change in work performance following misunderstandings between NGO personnel and a patrol committee in sub-site III***

**Participant 3M1ML:**

When Monica (not real name) came, she asked us to start patrols because the rain season is on and so people would start farming in the reserve. The committee asked about payments. We were told it was no voluntary work because the project has secured donors. She pleaded us to continue with the patrol and the project manager would settle the issue of payments. We were cooking lunch during patrols … and … on her second visit she paid sixty thousand (60 000 T.Sh) as a contribution to lunch during forest patrols, for each patrol group.

When she came in July she told us that what we received for lunch was our payment. That was very irritating to us. People were not happy and that was our last week of forest patrol. … For that reason we …only walked around the forest boundaries, going around the forest …we didn't enter the centre of the forest. ("Jamani … msiingie ndani, kwahivo mnazunguka mnarudi, mnazunguka vile mnarudi, mnakwenda mpaka kule juu, mnarudi kule au mnazunguka huu Mkuza mpaka kwenye kibanda kile, halafu mnazunguka barabarani mnarudi hapa mnakaa").

The movements of the wheels were mediated by activity systems and a network of feedback from each arrangement dimension. In the research timeframe of ±15 years of changes in forest management, there could have been times when the wheels were in motion but the directions were not clearly defined, e.g. during the time when local PFM activities almost stopped due to inadequate funding from government (section 5.7.3). This was also elucidated in the 'prisoners' dilemma' mechanism in section 7.3.3. The imaginary forms of motions demonstrate the various critical moments of interdependent interactions between the people's actions, sayings and their relations in forest activities. The described interplay of the three wheels may sound chaotic, which is supported by Schatzki (2012) when he identified the unpredictability of practices of human actions:

> These facts also imply that human activity cannot be controlled. The best that designers of lives and institutions can do is to create contexts… make certain activities very or more likely. Since activities are events that befall people, people themselves likewise cannot control them. People do have intimate experience of themselves and might know better than others which contexts increase the likelihood of their performing certain activities. But people's activity can be-and is from time to time-subject to new starts or changes in direction that surprise them (p. 9).

### 7.5.3    Fluidity in the formation of practices in both PFM and REDD

*7.5.3.1 The material economic arrangements in 'doings'*

The sociality of practice doings in the projects emerged from peoples' interactions in project activities through Participatory Forest Management. People learned to understand the rules

and procedures of doing various forest activities. People became knowledgeable of the activities as they critically engaged in individual or collective thinking about the activities and developing personal interests (see Box 7.2 and 7.4). Most of the emerged properties manifested through either physical engagement or mental engagement in the activities. Activities could involve mental assessmentof the forest conditions and procedures of management, e.g. when the community was annoyed by forest invasions from outsiders. Activities may also be physical, such as collecting seedlings, preparing nurseries, developing by-laws, conducting patrols, managing forest fires, and organizing school activities. The various activity bundles that constitute forest management practice at PKFR can be unlimited and some were invisible in space and time. This could include all processes that happened and that potentially occurred within physical and mental engagements of people in forest activities. Non-physical processes of engagement may include people's mood, attitudes, confidence, trust, fear, pride, and obsessions. All these may contribute to concretise the physical doings of activities in forest practice.

### 7.5.3.2 The cultural-discursive arrangements in 'sayings'

Schatzki (2012) identified the use of language for thinking, communicating and speaking as constitutive of practice activities. The semantic space of language was in the Pugu and Kazimzumbwi community essential in creating understanding of things through communication and enhancing knowledge systems and learning (Sabai, 2014). Cultural-discursive events in forest management activities, represented in the CEPs of Box 7.2 and Box 7.4, were potentially guiding the event/effect balance of practice learning. The sociality of practices, the action of agency, and the potential for learning are either enhanced or constrained by people's thinking and people's language of perceiving things and interpreting their meaning. Language is a mediumthrough which meaning is attached to objects. Bhaskar (2011) identified communicative language in critical realism as a real entity, since it leads to intransitive meanings. The language at the PKFR community was used to conduct meetings, deliver information, knowledge and skills as well as discus management plans, forest by-laws, etcetera.

Data from interviews and from analysis of documents showed that language was also used to craft metaphors (see footnotes 6 to10) and develop symbolic communication,such as in the example in Box 5.4for identification of charcoals kilns. Mukute's (2010) study on expansive learning in agricultural workplace contexts in southern Africa identified the use of metaphoric language as agentic inspiration towards social development. The metaphor of

'Dog without teeth' was, for instance, used by forest committees in the PKFR community as indicative of an agentive urge to acquire power towards changing the prevailing structures. Every individual's thinking and individual motive in the community was part of the collective knowledge contributing towards the objective of the project. However, people's level of understanding could vary across community groups in terms of scope of engagement in activities, personal meanings attached to the activities, and level of performance. For instance, a school learner could beinvolved in wildlife activities; a parent could have taken part in forest patrol teams or charcoals production schemes; and a school teacher could have supported forest inventory activities, organising forest campaigns and teaching of school learners. The three individuals may develop a different understanding of forest matters through different activity spaces in terms of thinking, communicating and social interactions. The varying understandingsacquired by different people were all comprehended within one project goal, namely to achieve PFM or REDD.

For instance, if a women network group under the Coastal Forest Education Project (see section 5.9.1) is campaigning for energy saving stoves in a public meeting, different groups of people in the community would perceive the talk differently. School learners could regard the talk as another one of their ordinary lectures. A lay villager in the community may regard the women's group as a team of energy experts that give valuable advice. The individual members from women groups may consider themselves as co-learners in the process of facilitation. Other people in the community may regard the women's network as an opportunity for entrepreneurship or paid jobs in future. While some community members would love to see that the work of environmentalist groups and the campaigns for energy saving is progressed, the charcoal dealers in the community would be threatened.

There was an example of tensions between different interpretations in the interview data that showed that belonging to organised groups can result in different interpretations by different community members. For instance, the old people (retired members of PFM committees) could be intimidated by the treatment that is offered to current members of REDD committees to facilitate committees' work. This was expressed by participant 1NRF of sub-site I in Box 7.2. While the REDD project provided equipment to individual members of committees, it needed to understand what the equipment could mean to different groups of people in the community. While the REDD facilitators were happy after fulfilling the committees' requirement, participant 1NRF was reminded of his bad experience in negotiating equipment for village forest committees. Such old people may not have the will

power to cooperate properly in current forest issues within the REDD project, simply because they feel they were not recognised by both PFM and REDD. Such interpretive ambiguities may extend to social beliefs, norms, and ethics.

***Box 7.3: Quotes expressing differences in community perspectives interpreted from individual experiences***

**Participant 1NRF:**

After we worked in boundary mapping, they abandoned us. And so we also abandoned the forest. That is why you see the forest is degraded today. They annoyed us when they abandoned us! They came again one time to seek collaborations with us and we agreed. We loved the forest. This time we asked them to provide us with field gear, such as uniforms and field boots. They ignored the idea.

These young ones, that are recruited by the REDD project, are now furnished with many things. They have uniforms, field boots, hats, and various weapons. We once asked the Director of forestry … "why are you forgetting us? We once put ourselves at risks when working for the forests …why do you forget us today?"

**Original quotation:**

"…Tulilima Mkuza sisi … wao walipotubwaga, na sisi tukaubwaga msitu, ndio maana mpaka leo unaona jangwa hilo la msitu. Walipokuja kutuchafuani pale walipotubwaga! Baadae wakaja tena, tukawambia … ndugu zetu kama nyinyi mmetupatia kazi ya msitu sisi kwetu hakuna tabu, sisi Msitu tunaupenda… sasa maendeleo … tupate vifaa vya kulindia kama kombati na mabuti. Wakaja wakatuponda.

Hivi sasa mradi wa REDD hao vijana waliowachukua sasa wamewapa vitu chungu nzima! Wamewapa makoti, kofia … wamewapa mabuti, wamewapa silaha nyingi tu za kulindia. Tulimuuliza Mkurugenzi wa misitu "…mbona mnetusahau jamani?sisi tulitaka hata kuuawa na majangili, leo mmetusahau?"

*7.5.3.3 The social-political arrangement in 'relatings'*

Engaging in forest activities, different people take on different roles and positions within different activities. A network of relations was created by connecting all doings of project activities in physical space-time, the use of language in semantic space for project planning, designing of activities, assigning roles, and placing people in positions. Relational networks were built between humans and between human and non-human entities. For instance, community members related among themselves through a conscious understanding of who was who and who did what in the project activities and why. Data from focus group

discussions indicated that members of forest and fire committees of the REDD project were elected by village meetings and so everyone in the village knew them. Both vertical and horizontal hierarchical relations were understood by village communities, e.g. there were relations among groups for maintaining the nursery beds, patrolling the forest reserves, and those who served as group contacts. Sorting people in REDD activity groups could be based on their different social-cultural experiences, e.g. participant 3MSK explained, as shown in Box 6.3, how they measured carbon stocks. He described the setting of transect plots, the physical measuring of trees, and the examination of soil properties and other conditions, like ground cover. Such detailed examinations of the field may involve literacy and capabilities of measuring, reading, recording and orderliness in collating measurements. Such things can form bases for social-cultural hierarchies in local relations.

Kemmis and Mutton (2012) identified a diversity of relations in practice activities, including those relations that exist in contiguity to one another, as also evidenced in the PKFR relations. For example, the owner of the only filling station in Kisarawe centre was commissioned to supply fuelfor the project vehicles. The relation of this owner with a school learner during tree planning or with an individual who uproots the planted trees because he/she is unhappy with the project, may not be physical and visible. The filling station owner may even not know the place where nurseries were established and his contribution in reducing greenhouse gas emissions may even be questionable. Thus, each of the REDD project activities could be achieved independent of one another, while making sense only to the individuals involved in the activities (Kemmis & Mutton, 2012). Nonetheless, all activities contributed towards achieving the overarching goal of the project. Similarly, people performing activities could learn from their roles in a range of project activities and the learning experience contributes to the achievement of the project objectives. Kemmis and Mutton (2012) highlighted that the arrangement of practices in project activities are formed and developed by people's own actions as they work in activities.

> Schatzki suggests that what makes a practice stable, and gives it its 'orderliness' is that people 'know how to go on' in it– they know how to enact its next steps and stages, learn through experience of the kinds of language games and forms of life that give the practice its meaning and significance. (Kemmis & Mutton, 2012, p. 191)

Community relations were extended across project actors that were not part of the village communities, e.g. with NGOs, university institutions that played a role in the REDD project,

and other organisations, like media and researchers like me. This is supported by data from focus group discussions, showing that the community analysed and validated other actors in REDD project activities (e.g. section 6.5.4.5, 6.6.3.5, and quotes in Box 6.8). The community also created relations with government departments that managed the REDD project, as well as with development partners (e.g. section 6.3.1, 6.3.2, 6.3.3, Box 6.1, Box 6.2, Box 6.3).

In summary, this research could not demonstrate how each and every activity and event stimulated social relations and how the relations were meaningful entities of people's livelihoods since such a list would be overwhelming. In this research I observed intimate overlaps between the three dimensions of practice arrangement. For instance, the social-relational positioning was impacted by the meanings attached to those positions by different people in the community, as shown in section 7.5.3.2 and in the quotes of Box 7.2. Different perspectives and meaning-making could lead to cultural-historical systems of power relations that either promote or constrain learning processes, social change, and transformation. The causal-effect conditions of power relations may include culture, ethical issues, gender, access to education, literacy, and other social-physical liabilities, such as health, body fitness, and age. Such conditions and other personal motives and intentions influenced social learning, social change, and transformation towards REDD project objectives.

### 7.5.3.4 Human to non-human 'relatings'

This section shows more examples of social-political, physical and ethical 'relatings' observed between human individuals and non-human objectsin both PFM and RED projectsat different timelines of the projects (Smith, 1937; Svennbeck, 2004). For instance, during the boundary mapping at PKRF, few examples occurred of human to non-human relations that stimulated caring for forests, as discussed in section 5.7.2.2. The love and care that emerged for various forest features in the mapping activities was expressed by participant 3K1AM in section 7.3.2.1 who shared her self-communication perspectives. Some reflexive caring of forests was also evident when people from the PKFR community stopped logging after the village forest reserve areas were marked and identified. Human to non-human relations were enhanced when intra-personal dialogues within individuals were stimulated by encounters with objects. Such relations are also encountered when community members engage in risk situations when taking physical actions, such as forest patrols and extinguishing of forest fire as evidenced by quotes in Box 7.3. A few group conflicts and physical assaults that happened during the REDD project's interventions also reveal the level of love and commitment that people have in protecting forests,as shown by quotes in Box 6.13.

### 7.5.4 Implication of practices for learning and forest development structures

Deeper abductions in realist social frameworks, through short intervals in time ($T^2A - T^3A$) and ($T^2B-T^3B$) interactions, indicated people's motivation to engage in forest management activities. The people's actions through practice interactions were mobilised through forest language and agentive communication, which inspired forest metaphors and collaborative talks about people's relations and social positions. Local people who acquired new social-political positions were identified through their different levels of engagement in forest publicity and promotion of project objectives (Table 7.2 and Box 7.4). Social learning, social change and human development are the integral parts of people's interactions in practice doings, sayings and relatings, as suggested by (Schatzki, 2012).

> This account of social phenomena sets parameters for an account of social unfolding, or development. Perhaps the chief implication is that the unfolding of social phenomena consists in the emergence, persistence, and dissolution of bundles and constellations thereof ... The main point at present, however, is that social development ultimately rests on the emergence, persistence, and dissolution of bundles … Because human activity and the unfolding of bundles are central to social change, indeterminacy characterizes social developments of all sorts. (Schatzki, 2012, pp.8-9)

Another level of social learning manifested when there was a fuzzy understanding of things, which raised more questions about the projects than it answered (Wals et al., 2009). These are moments when critical thinking, validation of assumptions and human reflexivity were evidenced, as also seen in the summary of PEP in Tables 7.2 and 7.4. Berkes, Colding and Folke (2003) and Stokols et al. (2013) identified natural occurrence of local complexity in social-ecological system management, which could include social disorders and disruption in social-ecological resilience. Stokols et al. (2013) noted the significance of such complexity for analysing human abilities to cope with sustainability disorders, a process which entails social learning and social change. Biggs, Schuler and Schoon (2014) identified several essentials for social ecological resilience and among the identified principles are systemic thinking, human participation, learning and experimentation. Through interview data and group discussions, this research showed parts of the essentials that occured at the Pugu and Kazimzumbwi community during both the PFM and REDD project. The data shows evidence of facilitated human participation, experimentation in field work, indicators of social learning, and subtle changes in social practices (see Table. 6.4)

Every time a gear in Figure 7.2 makes a turn, learning occurs and a characteristic forest property emergesas the forest management approach evolves into a different version. The causes and effects of practice activities impact on the governing structures of the practice, which is formed by practice arrangements, as is indicated in Table 7.6. The structures that govern activities are laid down by conditioning mechanisms ($T^1A$ and $T^1B$), which includes the relevancy of project designs to enable or constrain learning, social development or transformation. What happened in the practice system when the REDD project issued an order to stop to the project was a causal-effect of disorders in the emerged governance structure within the REDD project. In a realist perspective, the relationship between practice systems and that of disrupting orders could have nothing to do with people's understanding of the rules or their involvement in project activities. It may have more to do with contingent conditions that may influence activity systems from external forces of relations (Danermark et al., 2002). Learning and social development in a practice activity system may, in that way, be disrupted before social change and social transformations are achieved.

## 7.6 LEARNING, TRANSFORMATION AND THE GENERATIVE MECHANISMS

The lesson learnt from the Pugu and Kazimzumbwi community context in terms of learning, social change and transformation, reflects on local responses to broader power relations of political economy. Chronological events in the community are mediated and influenced by different traditions in global politics and economic discourses governing natural resource management at regional and sub-regional levels. Thus, when implementing local projects, such as PFM and REDD, there is a blindness in discerning the processes of community learning towards transformations. The consequence of lacking strategies for learning processes that change communities,is a lowered efficacy of local project initiatives to contribute to climate change issues, as argued in the IPCC WGII AR5 (2013) and the IPCC (SREX) (2012)reports, which are further discussed in sections 8.3. The reports draw attention to the significance of research in learning processes that can bring about transformational adaptations in community practices.

Table 7.7 briefly summarises some of the main features of dominant traditions that roughly engraved political economic discourse within the timeframe of this research from ≥2000 to 2015.

*Table 7.7: Summary of the general trend of power relations and liabilities that generated mechanisms for governing learning, social change and transformation for the PFM and REDD projects in a broader perspective*

| Generative mechanisms | 'Jazz anddance' metaphor | 'Marriage' metaphor | 'Absent key-in-lock' metaphor | 'Buyer andseller' metaphor |
|---|---|---|---|---|
| **Prevailingconservation politics** | Colonial to post-colonial. Inherited prescribed conservation. Associated modernisation; less focus on community education. | Post-modernism. Integrated conservation and development – education focus –PFM Project. | | Neo-liberalism with expansion of globalisation – business facilitation – REDD Project. |
| **Global power relations** | Centralised management policies. 'Donot touch' approaches. Top-down management. External control of local resources and restrictions in use. Local people alienated from local resources. A typical master-slave relation. | Political-economy emphasising shedding of centralised government powers. Empowering of civil societies and communities. Co-governance in local resources and services. Privatisation of resources following structural adjustment programme by World Bank. Increased pressure on resources extractions. | | REDD mechanism. Global mechanism for putting environment into market place economy. Sustainable technology; biofuel; green economy etc. Patronising African in the name of community benefits. |
| **Liabilities** | Enough land for survival; high levels of African literacy; low capacities for technical knowledge; localised economies patronised by colonial legacy; African states | Failure to achieve post-independent goals in African states, e.g. African unity, common market; African economic debts. Failure to address contextual conditions; social equity; gap of human wellbeing; the minor-majority dichotomy. | | Climate change impact to devastate Africa more than developed countries; more and more African land under market schemes; less land for agriculture; poor agricultural economy. Increased master- |

| | | |
|---|---|---|
| | overwhelmed by management responsibilities. | | slave dependence; widened gaps of equity. |
| **General developmental conservation** | The trend in conservation – development – education – transformation embedded within the general 'master-slave' power relations, which tend to reappear in new versions. | | |


## 7.7    CONCLUSION

Chapter Seven re-analysed the evidence of learning described in ChaptersFive and Six, using two meta-theoretical perspectives, namely the realist social theory and the practice theory. The morphogenesis/stasis model was used to trace the trend of events in both PFM and REDD projects and their outputs in space and time. The practice systems, represented as a set of gears,were used to show the vicious motions in which the physical-material arrangement in project activities influenced the prevailing discourse and thus people's relations, and vice versa.

Chapter Five and Six indicated an inability in both PFM and REDD to successfully implement transformational changes through learning interventions at the Pugu and Kazimzumbwi community. Chapter Seven used the meta-theoretical perspectives to build explanatory insights for possible mechanisms that generated conditions for both PFM and REDD practices in the local contexts. The philosophy behind generative mechanisms influences projects to either enable and/or constrain local learning engagements and endurance processes of social change and transformations. Some of the identified learning constraints were structural, historical economic, and social-political.  Chapter Eight will conclude the research results and provide reflections and recommendations derived from these results.

# CHAPTER EIGHT: SYNTHESISING THE RESEARCH FINDINGS, REFLECTIONS ON THE RESEARCH, AND RECOMMENDATIONS

## 8.1 INTRODUCTION

Chapter Eight synthesises the research findings of the study as described in more detail in Chapters Five, Six and Seven. In doing this, it draws on the social realist theoretical framework worked with in the thesis, and the practice arrangements that were described in Chapter Seven. Section 8.2 summarises and synthesises key research processes that informed the previous seven chapters. The summary highlights the contribution of each research process to the ultimate findings of this research. Section 8.3 re-contextualises the findings of the research in relation to global policy perspectives that are critical for climate change transformational adaptation as outlined in the most recent reporting of the Intergovernmental Panel on Climate Change (IPCC, WGII AR5, 2013). The section also suggests how the research contributes to global/local practices in addressing climate change through the REDD project mechanism, the most recently introduced form of participatory forestry management highlighting the significance of engagement with PFM approaches under new conditions.

## 8.2 RESEARCH SUMMARY

The research investigated the influence of introduced participatory forest management approaches on social learning in local communities surrounding the Pugu and Kazimzumbwi forest areas in Tanzania. As explained in Chapter One, during the time of the research these communities were implementing a pilot project for REDD (2011-2015). The REDD project mechanism is intended to mitigate global temperature increase by lowering local deforestation and forest degradation (United Republic of Tanzania, 2009). The research process includes retrospective investigation of PFM experiences in the communities' concerns starting in early 2000, but also including pre-independence perspectives. This inquiry was constituted as an ex-post factor research process that sought to understand conditions of learning and transformation in which the REDD project mechanisms sought to operate.

The ex-post factor research process addressed the first and second specific objectives of the research that sought to identify and clarify trends and changes in forest management approaches from 2000 to 2015 and their implicated learning trajectories. It also identified the social learning that occurred, how the learning emerged and how the learning could

potentially drive transformative changes. The investigation of the REDD project mechanism was to explore the present relevance of the mechanism for influencing social learning and transformation of social agency in the community. This part of the research addressed the third and fourth specific objectives of the research by exploring: how REDD mechanisms influenced learning, how the mechanisms enabled and/or constrained the conditions of learning, agency and transformation and how the REDD project aligned to adaptive co-management. As a researcher I identified potential for social learning from the REDD project mechanisms in the Pugu and Kazimzumbwi communities. In addition conditions were identified in the REDD project that constrained the learning processes from developing social changes and transformations in the communities concerned (sections 6.6.1; 6.6.2; 6.6.2). Additional relevance of this study focus was found in recent research findings of the IPCCWGII AR5 (2013) and the IPCC (SREX) 2012 report, which identified learning through adaptive collaboration as key processes for promoting transformational adaptation and the resilience capacity of African communities to respond to existing and projected impacts of climate change.

Examination of the learning processes in both earlier PFM approaches and the more recent REDD approach was informed by social realist ontology and epistemological frameworks which also informed the methodological, theoretical and analytical understandings of the learning processes. The social realist tools which use analytical dualism helped to separate personal emergent properties and powers that shape human agency in learning from those of structural and cultural emergent properties and powers that shaped the prevailing mechanisms along spatial-temporal moments of morphogenesis/stasis events as outlined in Figure 7.1. The research also used the framework of practice theory to describe the dynamics of physical, semantic and social-political spaces of people's learning in practice interactions, development and social change (Figure 7.2).

This research contributes knowledge to the field of environmental education and community learning. The research illuminates basic processes through which rural communities may engage in social learning, agency, social change and transformation. The research process involved listening to local people's voices and analysing learning from individuals' lived experience and memories of engaging with the participatory management of forests. The research was not evaluative (in the sense of evaluation research) but rather sought to provide an informative exploration of learning indicators through the rarely heard experiences of local people's perspectives within the introduced PFM projects, including REDD. The study drew

on a critical realist ontological positioning. The axiology of the research was oriented towards community empowerment and emancipation of local perspectives as expressed in section 4.6.1. Both Cundill (2010) and Vare & Scott (2007) observed the tendency for conservation scientists and researchers to account for community learning (in forestry) by examining ecological variables of forests rather human conditions for learning. Focusing on ecological variables alone may impose limitations on viewing the agentive space in learning processes that are shaped by social-cultural and historical contexts of life. The power of agency in mediating learning may not be explicitly reflected in the ecological variables of forests since such variables are determined by multiple factors which may have nothing to do with people's learning potential.

The following sections present a summary of the research findings which show the contribution of the research to understandings of global, regional and local plans for learning. The Intergovernmental Panel Climate Change report (IPCC WGII AR5,2014), in the policy makers' summary, identified learning as part of community adaptation to the systemic emergence of changes. The report conceptualised the mechanisms of social learning systems in a larger and holistically-construed systemic interplay of events, confirming this as an important area of research.

## 8.3 SUMMARY OF MAIN RESEARCH FINDINGS

### 8.3.1 Potential for social learning and social change

The research identified that social learning had occured during both PFM and REDD interventions. Social learning occurred at varying levels.

- The interplays between tacit knowledge and PFM practices under the prevailing conditioning mechanisms (sections 5.7.2.1; 5.7.2.2 and section 7.3.1 and 7.3.2.1) appeared to be complementary. The conditioning mechanisms enabled social learning by enhancing, amongst other things, people's changes in understanding, motivation, networking, trust building and learning by doing. The learning was social-culturally and historically reflexive as was reflected in the emerging properties of structure, culture and agency in space and time (see Table 7.2). The changes in forest management discourses around Pugu and Kazimzumbwi community over chronological timelines were responsible for changing people's knowledge about forestry, as discussed by Sayer (2000) in section 3.2.1

- The REDD project interactions with the antecedent PFM praxis experiences allowed for potential actions and learning towards reduction of greenhouse gas emissions. Examples of praxis knowledge were explained in sections 6.3.1 to 6.3.4 and also section 6.6.1.1. The social and cultural context of learning during the REDD project was informed by praxis knowledge of both the local community and the government which was shaped by a more than ten years of experience in participatory forestry management practices. Some learning potential observed created space for people to think, talk and examine the REDD assumptions in practice. Some learning emerged from a well implemented starter pack and community anticipation for success (see Table 7.4)

- Through both PFM and REDD interventions, individuals in Pugu and Kazimzumbwi community advanced their understandings of potential mechanisms for institutionalisation and governance of forest resources. Through iterative learning by doing, the people engaged in understanding the presence and absence of particular mechanisms that seemed essential for governing forest resources in the Pugu and Kazimzumbwi contexts. Historically constituted community actions and experiences at Pugu and Kazimzumbwi therefore appeared to have potential for addressing absences of particular practical components in articulating forest governance systems in rural communities (sections 6.3.1; 6.3.3; 6.3.4).

### 8.3.2 Constraints for managing the emerged learning

The research identified some constraints in both the earlier PFM and more recent REDD project mechanisms for promoting, sustaining and readjusting to meet conditions of the emerged learning (see sections 6.6.1.2; 6.6.2).

- Section 5.7.2.3 indicated that the mutual learning interplays between prospective PFM partners were not sustained. The government indicated the need to pursue Joint Management Agreements (JMA) through developing policy narratives and inviting local partnerships. The community developed new understandings, capabilities and capacities for turning local forest practices towards Joint Management Agreements as proposed by the government. The structural mechanisms (see section 1.3.3) for Joint Management Agreements were primarily constrained by the original articulation of Joint Management Agreement narratives. The field contextual experiences that were

to provide relevant feedback for re-framing of joint management agreement mechanisms were also constrained by institutional hegemony. The initially emerged properties of community learning were weakened by systemic constraining conditions in project management.

- Some learning processes for complementing praxis knowledge at the PKFR community manifested during the REDD project activities. Constraints of social learning and social change developed in the REDD mechanisms when the dialogue between stakeholders' interests, responsibilities and accountability was limited (section 6.3.3.1 and section 6.6.1.2). The research process focused on community learning and local people's perspectives to indicate possible misunderstandings amongst state actors and between state actors and the community. Constraints in stakeholders' collaborations for reaching  common understanding among project actors was seen by the community as one of the reasons for termination of the REDD project in the Pugu and Kazimzumbwi site. This is contrary to section 2.6.6.4 where the Tanzania National Adaptation Programme for Action on climate change emphasised collaborative community learningfor enhancing adaptive capacities across sector areas.

### 8.3.3   Constraints for reaching transformational objectives

The research observed subtle changes in social practices in space and time during both the earlier PFM and more recent REDD projects. The research also identified various constraining conditions affecting the influence of projects on transformational changes in the community. Linked to this, and showing the importance of this finding for further climate change adaptation engagement, the IPCC (SREX) (2012) report described transformational processes in climate change interventions as enabled by learning.

> Transformational responses are not only possible, but they can be facilitated through learning processes, especially reflexive learning that explores blind spots in current thinking and approaches... However, because there are risks and barriers, transformation also calls for leadership – not only from authority figures who hold positions and power, but from individuals and groups who are able to connect present-day actions with their values, and with a collective vision for a sustainable and resilient future. (IPCC (SREX), 2012, pp. 466)

- From one viewpoint, the constraints that prevented transformational performance in the REDD project at Pugu and Kazimzumbwi community may be blamed on premature termination of the project (as REDD did not complete the five year planned life cycle from 2011 to 2015). In fact, the project mechanism did not operate for longer than a year. Project termination may suggest inadequacy in project mechanisms for coping with contextually emergent social conditions and transformations.

- As reported in sections 5.7.2 and 5.7.3 as well as Table 5.2, there were two distinct phases in PFM project interventions. The first of these phases was shaped by donor funding interventions, and activities were funded by external donors roughly between 2000 and 2005. The second phase involved the mainstreaming of PFM by government into state practices, roughly between 2005 and 2011. The project mechanism in the donor funded phase of the project didn't influence significant transformations in the community as it did not achieve joint management agreements for local participatory partnerships. This problem extended into the second period as the government mainstreaming phase of PFM was constrained by economic as well as organisational structural weaknesses. O'Brien and Sygna's (2013) ideas on transformational changes in section 2.6.6.4 are reflective of circumstances of learning, change and transformationin Pugu and Kazimzumbwi community as both PFM and REDD projects focused on transforming **practical** measures in the community, **political** systems and **personal** perspectives. Transformation of these was not adequately achieved because, as argued by Kemmis et al, (2014) and Schatzki (2012), the projects did not influence significant alterations in practice arrangements (section 3.3.2.2).

### 8.3.4 Inadequate conditions for adaptive co-management

The research, through its focus on social learning, sought also to understand the REDD project mechanisms at Pugu and Kazimzumbwi community for adaptive co-management (section 2.6.6.3), as the transformative social learning concept is widely linked and is integral to the success of adaptive co-management. The research participants validated the practices of REDD project at Pugu and Kazimzumbwi community and showed that there appeared to be little relevance to adaptive collaborative management. Showing the relevance of this relationship, the IPCC WGII AR5, (2013) report emphasised social learning and

transformational adaptation practices in facilitating community adaptation and resilience to climate change impacts. The report, among other things, suggested prioritisation of research methodologies that strengthen adaptive co-management and resource governance structures:

> Research on strategies for the implementation of adaptive management and risk reduction for development [is needed]. Examples of important research needs include improving the understanding of respective roles and interactions between autonomous response behaviour and policy initiatives, improving the body of empirical evidence about how to implement changes that are judged to be desirable: e.g., adaptive management and governance capacity, and improving the understanding of differences between retrofitting older infrastructures (the challenge in many industrialized countries) and designing new infrastructures (the challenge in many rapidly developing countries). (IPCC WGII AR5, 2013, pp. 27)

This research therefore provides some insight into how social learning may be constituted to further the aims of adaptive collaborative management in REDD community project contexts. As indicated earlier, REDD is seen to be a key climate change adaptation / mitigation strategy. Through reflecting on the project mechanism, the local community also reflected on their own practices since many of the inter-relational mechanisms for adaptive co-management are dialectic. Reflection of inter-relational mechanisms cannot therefore be left only to project implementation mechanisms and cycles, it also needs a clearer understanding of the relationship between community roles in social learning and adaptive co-management for climate change adaptation.

## 8.4 OTHER FINDINGS

The research also produced other findings that are important to the research context, although these address the research questions in more indirect ways.

### 8.4.1 Diverse learning capabilities across the three sub-sites

The research identified a divergence in community learning potential between the three sub-sites. Sub-site III was the most rural of the three sub-sites in terms of its location with less influence from urban populations. The research identified higher potential for community learning in sub-site III than in the other sub-sites. Here, the village chairmen of sub-site III locations were more coherent when discussing forest issues, were able to provide relevant statistics and documents to support their arguments, and seemed to have a common understanding with their people (see Table 6.3). The sub-site had once practised eco-tourism

through village forest reserves that were formalised during the PFM project (as shown in item 9 of Table 4.6). On the other hand, leaders of sub-site II and I were less conversant with village statistics as they discussed learning issues and claimed to have difficulties in mobilising people for environmental conservation and learning activities. Chairmen in sub-site II and I claimed to lead larger populations with diverse backgrounds in social-political economy and interests. The potential for learning may therefore be constrained by the different orientations to social, political and economic conditions.

### 8.4.2  Community's knowledge and economic capabilities

The proximity of the Pugu and Kazimzumbwi to centres of economic power such as the city of Dar es Salaam, international airport and harbours, meant the community was relatively better informed with general knowledge on development issues than communities located far from Dar es Salaam. However the PKFR community that was characterised with higher levels of knowledge, including awareness on forest issues, showed low capabilities and capacities for economic production and livelihood development compared to communities that were located far from the city of Dar es Salaam (as explained in the quotes of Box 6.9). Field data also showed high un-employability in the area due to low levels of education and lack of formal skills for marketable jobs. Most adults are not employable and are also not productive enough to change the local economic structure, cultures of practice, and this may also influence their agency for transformation. The low workmanship in economic production, which could be linked to social-cultural, historical and economic contexts, may have limited the use of knowledge for livelihood development and diversification.

### 8.4.3  Increased gaps in social well-being between community groups in Tanzania

In this research I was able to identify some social-cultural constraints that influenced the PKFR community's aspirations for succeeding and for completing formal education. Participant 2K1AD from one sub-village of sub-site II claimed that some parents were not letting their children go to secondary schools despite government's interventions to extend secondary school opportunities to rural children. The participant claimed that some parents only allow children to go to secondary school for fear of being caught by the government and not because they see the value of education. She also believed that the out-of-school children in the community tended to contribute to the vicious cycle of illiteracy-poverty-land/forest degradation in the community. Through this research I identified that local communities that

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experience low levels in formal education, may find it harder to believe in the power of education for changing social well-being, for many reasons, one of which is that the poorly educated communities may regard educational investment as delaying economic achievements. Such communities may also experience formal education investments as financially consuming. Poorly educated communities may opt for 'quick money' plans as they equate development with financial wealth and material possessions. The 'quick money' plans may in turn not be able to deliver the social well-being results that might otherwise be possible, thus extending the cycle of poverty in future generations.

## 8.5    REFLECTIONS

### 8.5.1    Researching a single actor in a multi-stakeholder intervention

This study researched social learning in a community which lived and worked with other actors that were active beyond community levels. The research therefore has gaps in understanding that could have been generated by the perspectives of other actors in the learning events described by the communities. However, I still felt it important to focus first and foremost on community voices as these have been previously under-represented in forest developement studies. Therefore, throughout the three years of conducting this research, I focused the research inquiry on exploring the socially-based multi-stakeholder interventions of the projects from the perspective of only one actor group, the community. However the learning perspectives of the community could also be reflected upon through roles of other stakeholders that were not part of the research inquiry. In this sense, the research is limited as it purposefully avoided in-depth engagement with other actors perspectives. The research can therefore only be considered as a contribution to the field of Environmental Education and learning in Pugu and Kazimzumbwi forest reserves as viewed through local people's perspectives.  Further research to explore learning in the Pugu and Kazimzumbwi community could consider the perspectives of other actors in PFM and REDD projects such as NGOs, development agencies, local government authorities, the central government and so forth. To a limited extent, the views of these other actors were represented in the research via documents and reports that were consulted during the research, but I did not seek out in-depth understandings of their lived experiences of the PFM and REDD as a social learning process amongst community members. I would therefore recommend expanding this perspective in further research.

### 8.5.2  Self-reflexivity in the research

Having worked within an NGOs sector for the last ten years and having gained experience in Environmental Education in rural communities including Pugu and Kazimzumbwi community as noted in Chapter One, it was also difficult for me to detach my position in the research from that of the NGO position. I therefore had to explicitly practise research reflexivity and take into consideration my role and positioning in the study as advised by Bhaskar's (2011) realist perspective of the 'self' in section 4.6.2. Through  self-reflexivity, and through trying to be 'detached' from the NGO context and interests, and by focussing on community learning experiences and the historical timeline, I found that my eyes were opened. Thus I was more clearly able to reflexively view myself as an educator and a learning facilitator. On several occasions I could look back on how I had operated in the community and how I had either enabled or constrained the learning of  rural people. I realised then that I was also partly researching my own practice, my professional orthodoxies and prejudices. Lindley (2013) and Belay (2012) also struggled with this 'researcher' position' and with taking account of their own subjectivity when researching social learning in Africa. I was advised by Lindley (2013) to let myself learn to position myself through contextual interactions rather than work according to a prescribed strategy. I therefore engaged in self-reflective relationships with participants while consciously seeking to create adequate space for participants to share their perspectives. This required me to allow enough time for speaking and to give attention to listening, and to how I listened and responded to research participants. I was therefore pleased at times when participants were critical of NGOs when they knew that I had been involved in NGO processes, as I realised that they felt comfortable enough to 'speak out' honestly in my presence. Through this, I have come to learn that self-reflexivity is a vehicle through which I could practice research that takes account of my own subjectivity and identity, while allowing other participants to do the same. This research provided a learning ground for me as a researcher and as a practitioner. If I were to, from the vantage point of an NGO, develop a project proposal for implementing a REDD project today, I would certainly frame it very differently, following this research experience.

### 8.5.3 Validating insights from people's voices and memories, while avoiding methodological individualism

During this research process I listened to the lived experiences of the Pugu and Kazimzumbwi communities through the memories of individual people, obtained in face to face narratives and from documenting voices. The advantage of this inquiry approach is that it allows for qualitative perspectives at 'down to earth' levels which may be overlooked by some sciences. Through drawing on social realist and practice theory, I was able to contextualise the narratives further within their social-ecological dynamics, and within the contextual and socio-historical dynamics that were reflected in the learning of individual members of the community. Alvesson (2011) described interview-based research as highly subjective: interviewee's have their own understandings and choose what to disclose and what not to. Critical realists would see this as a form of methodological individualism, and hence suggest that such research is under-laboured by ontological mechanism analysis, or structural and cultural emergent properties analysis as suggested by Archer in her social realist theory of morphogenesis. At the empirical level, the data was generated from what participants recalled and chose to say about forest events and circumstances and this was complemented or extended through ontological analysis of emergent properties. To further moderate the trustworthiness of the empirical perspectives, this research employed multiple inquiry methods where participants were grouped to discuss what they had initially reported in individual interviews. Through this group interaction, participants were engaged in a form of member checking of their own reporting, through reflection, sharing of further insights and through collective deliberations. To obtain a multi-voiced perspective in the empirical data, during group interviews I invited local leaders who were part of the community. This allowed for that which was deliberated by village members to be shared by leaders such as village chairmen and village executive officers who are government representatives, and through this, contested perspectives also came to the fore. The insights generated face to face were further triangulated with information from historical documents and archival records to locate both clarities and ambiguities in perspective. To avoid methodological individualism, however, the research was under-laboured by critical realism and used analytical dualism for retroductive analyses and practice theory to help abductively recontextualise the empirical insights.

### 8.5.4 Working with practice theory to interpret the 'social interaction' phase of

**morphogenesis**

The use of practice theory as a tool to identify the three forms of practice arrangements and the notion of their occurrence in intersubjective spaces helped to clarify occurrences that were taking place via social interactions. While Archer (1995) described the agentic processes and interplays as they are shaped by emergent structural, cultural and personal properties, she also argued for the primacy of practice as the space in which social interaction emerges. Practice theory therefore helped to situate forest management practice interactions in a user-friendly way. As I analysed the various empirical events happening on the ground, the arrangements of practices appeared to unfold more substantively than was theoretically assumed. The concept of practice arrangements was more tangible and practically descriptive of the structural-agency interplays which are essential sites of morphogenesis/stasis.

The morphogenesis/stasis model was useful in framing the practice arrangements into orderly events in terms of directions, space-time and purpose. The morphogenesis/stasis model re-defined the practice interactions by giving them theoretical beginnings and ends in order to identify what was produced out of practices, how it was produced and what conditions govern the production processes. Social realist meta-theory was therefore 'brought to life' in the forest management practice context through practice theory which helped to illuminate the social learning processes that were emergent from the introduced practices and how people participated in and thought about them.

## 8.6  RECOMMENDATIONS

This research raises seven recommendations for future development in the field of Environmental Education and learning, rural/community development and participatory management of forest reserves.

### 8.6.1  Environmental Education practitioners must improve their knowledge of learning processes in the field of education.

The research recommends Environmental Education practitioners, forest managers and other sustainability facilitators take into careful account the delicate relation between advancing ecological goals and fostering change process in community development projects. The complex relation that exists between people's understanding of things and their change agency seem overwhelming (see section 6.6.1 and 6.6.2) without adequate knowledge of change-oriented learning. This was also noted in section 2.6.6.4 when Bangay & Blum

(2009) claimed adequacy in people's understanding of the effects of education and learning in climate change adaptation and mitigation. Such knowledge recognises the understanding of learning as a complex socio-cultural process that emerges over time and is shaped by historicity, experience, power relations, events and relations with the social-ecological systems in which people are situated.

### 8.6.2 Development of participatory policy frameworksshould encourageflexibility for contextually-emerging possibilities.

The research recommends policy reviewers and social analysts in the area of participatory forest management or in other stakeholders' collaboration adopt flexible and reflexive designs in the creation of policy narratives. Policy guidelines are sensitive spaces where practitioners meet policy as the rules of the game that frame practice, aspiration and possibility. As shown in this study and as previously explained in section 1.3.3 and section 2.7, these policy guideline processes have direct impacts on people's lives as policy is not implemented in neutral spaces. Flexibility in policy guidelines and reflexivity in policy implementation may give room for locally emerging experience to provide feedback in the framed practices informed by policies (and vice versa). Flexibility may minimise the threat of feedback being only oriented towards achieving project' objectives and for resulting in institutional hegemony at the expense of locally emerging experience as it emerges in complex ways over time, as was shown in this study. This requires policy to also be more sensitive to historicity and the socio-historically constituted antecedents of current policy interventions and projects such as REDD. In some sense, a social learning approach to policy seems to be required, and this needs to be actualised in contextually sensitive ways in response to historicity and possibilities for expanding learning and change.

### 8.6.3 More testing of social learning processes in adaptive co-management frameworks particularly for other REDD pilot projects in the country

The REDD pilot project is currently being implemented in nine rural projects in Tanzania including other parts that involve coastal communities. The theoretical and methodological frameworks of this research may be tested in other REDD pilot projects in the country within a broader research framework. Further research may fully engage with the constituted and emergent mechanisms of the REDD project with reference to the relationship between social learning and the intended adaptive co-management framework of REDD. However,

undertaking such research into the relationship between social learning and adaptive co-management approaches within the REDD framework must not be confused with testing successes or failures of projects' implementation, since – as shown in this research – success or failure of social learning oriented adaptive co-management is a product of many factors.

### 8.6.4 Engagement of critical theories in research studies that focus on social dynamics occurring in reflexive communities.

The research theories and methodology used in this study can be applied in studying other socially-reflexive entities such as community health, literacy, human concerns etc. The research methodology provides open-ended frameworks that complemented the theoretical frameworks in seeking emerging evidence of learning without prescribing checklists of items. Following a hypothetical order in researching socially-reflexive entities may limit access to holistic views in the occurrence or existence of most socially-reflexive and elusive phenomena as recommended by Lotz-Sisitka (2012a) in section 2.8.2. She recognised that socially-reflexive entities like social learning are hardly epistemological since are they emergent from ontologies, epistemologies and axiology.

### 8.6.5 Formal recognition and institutionalisation of local settings when planning interventions that may involve feedback response from local actions.

This research recommends institutional commitments to, readiness for, and common understanding of the depth of involvement of communities in project designs and local interventions. Essentially the process of institutionalising project activities must involve the local people, their historicity and experience, and their setting, which are often taken for granted as people are viewed as recipients of donor interventions. Development agencies and donors should not settle for contractual terms at state levels only without understanding of institutional modalities at grassroots levels, the actual site for the commodity of exchange.

### 8.6.6 Developments in local resource management must involve learning expertise in framing resource governance

The process of developing projects for local resource management interventions must consider community learning and particularly transformative social learning approaches. As shown in this study, this may involve critical assessment of contextual histories of people, and an understanding of the emergent properties and powers that could be generative of

emergent new practices in diverse social contexts. It also includes a consideration of reflexivity, flexibility and the time, space and trust that are needed to fully engage communities in their own learning and change. Proposal development should therefore also 'design in' structural and social mechanisms to mobilise ongoing social learning and emergence of new practices, and to respond to unpredictable emergences and change.

**8.6.7 Researchers and other external observers must pay enough attention to community's perspective in viewing social practice dynamics including learning and formation of local agency.**

The research recommends researchers in different fields of social studies to focus deeply on rural people's perspectives when studying rural phenomena. This will tend to complement (and not replace) the knowledge obtained from other data which reflects on communities' practices. Other organisational views on community practices may provide secondary information which, as shown partly in this study, may not suffice to describe and critically appraise individual levels of reflexivity and agency. Involving rural people as subjects in researching their own developmental concerns is potentially empowering and also emancipatory (Lather 1986a; 1986b), and can lead to further agentive activity and change. This is also shown by recent studies in environmental education undertaken by Mukute (2010), Masara (2011), Belay (2012) and Kachilonda (2014). These scholars all made a strong case for the possibilities of expanding community agency for change via social learning processes that take historicity and socio-cultural / social-ecological contextual factors into account, and that recognise the complex interactive processes that are required for learning to occur. They viewed learning not merely as a process of cognitive change, but as a process of socio-cultural change in practice, relations and interactions over time. Mukute (2010) argued that this involves cognitive justice, and Kachilonda (2014) and Masara (2011) suggested that there is a need also to probe power relations more deeply in the constitution of social learning processes. Belay (2012) argued for the power of inter-generational and inter-community interaction in enabling such learning. All these studies are also located in African natural resources management and learning contexts where learning processes and expanded forms of agency have been established amongst rural communities in response to their natural resource management concerns. This study therefore contributes to this growing body of research that is unfolding the dynamics of such learning processes in a southern African / African context.

## 8.7 CONCLUSION

In this research I have attempted to understand how the local people at Pugu and Kazimzumbwi, through externally-funded participatory forest projects, are enabled to learn to live sustainably, to change their lives and to transform social practices. The research wanted to find answers by exploring the mechanisms that are employed by projects in influencing learning and changes in communities. The research also explored agentic powers and

capabilities of the community to offer spaces for project mechanisms to influence learning, change and social transformations under specified contexts. The research was aware of the role of context and individuals' reflexivity on the introduced curricula for influencing the enablers and constraints of learning from project mechanisms.

My intention as an educator and learning facilitator was to study this complex circuit of events in the learning process in order to use it for improving future educational interventions that seek to expand human learning and change in response to risk and increased vulnerability under poverty and environmental change. This research therefore informs environmental educators and sustainability facilitators who need to use the learning experience of PKFR community in day to day practices (as described in section 2.2 to 2.5 and section 2.6.4 to 2.6.6). While the research output can inform practitioners, it could also be useful in providing feedback to policy structures and other collaborators in the field.

Engaging in this research from the forest management point was for me a way of valuing the significance of integrating learning into natural resource management schemes. Many of the ecological projects and programmes tend to include staff from fields of natural sciences such as biodiversity, wildlife, water resources and forestry expertise, as was found to be the case in this study. This tends to disregard the tasks of managing the change processes in the human community that is involved in development of specific natural resource management practices. It is often assumed that the task of managing change and social transformations can be performed by any well educated person and so the assumption is that any natural resource scientist can do this. This research therefore wanted to highlight the perceived balance of responsibility that is created when natural resource institutions are recruiting staff for ecological projects. Most importantly, however, it sought to open a pathway for thinking more about the important role of learning and social learning in particular, in strategies and projects that are oriented to improved natural resources management and climate change responsiveness. As argued by the IPCCWGII AR5, (2013), learning must be an important focus of adaptation, but for this to be the case, it should be viewed as such by project and programme developers of key initiatives such as REDD.

It is interesting to note that as I finalise this thesis, a paper arguing on disaster risk reduction responses has recently been published by Lutz, Muttarak & Striessnig (November 2014) following a review of the effect of 40 years of education on disaster death tolls around the world. They make the point in their paper that there is a need to re-look at the power and

potential of education and learning for reflexive engagement, resilience to, and responsiveness to climate change. While their paper deals with education at a broad level, and they mainly recommend formal education, this thesis has shown that there is also a need to focus on more informal forms of social learning as these are potentially powerful sources of learning and change in community contexts. Additionally, Lutz et al. (2014) suggested that one of the problems with the current education system interventions for climate change responsiveness is the 'time lag' for formal education outcomes to be realised. Hence this research sees the need to complement formal education with social learning in community contexts to reach a wider range of people in society at multiple levels. Major initiatives that are established for the purpose of mediating climate change adaptation and mitigation, such as REDD, must give adequate attention to social learning in their set-ups and operations. Failure to adequately focus on learning challenges as seen in the REDD case at Pugu and Kazimzumbwi necessitates an important future focus for further research and development in such participatory projects and programmes. This study has shown that such engagement should also not be addressed superficially, but should be constituted within the complexities of historically formed socio-cultural and social ecological realities, lived experiences and potentials.

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# APPENDICES

## Appendix 1: Copies of letters of approval from Dar es Salaam regional administration and Pwani regional Administration, co-signed by respective district authorities

The United Republic of Tanzania

**THE PRIME MINISTER'S OFFICE**

**REGIONAL ADMINISTRATION AND LOCAL GOVERNMENT**

**COAST REGION:**
Telegrams **"REGCOM PWANI"**
Tel. No. 023-2402066.
　　　023-2402500
　　　023-2402287
Fax No. 023-2402250/2402686,2402151
E-Mail: raspwani@pmoralg.go.tz.

In reply please Quote:

Ref. No. FA. 221/265/01/366

REGIONAL COMMISSIONER'S OFFICE,

P.O. Box 30080,

**KIBAHA.**

14th May, 2014

District Administration Secretary,
P. O. Box 28003
**KISARAWE.**

### RE: RESEARCH CLEARENCE

Kindly refer to the above subject.

I would like to introduce to you **Ms. Victoria Ugulumu Ferdinand** who is a Tanzania PhD Student of the Rhodes University South Africa.

At the moment she has been given a permission to conduct a research study titled "**To investigate how forest management practices influence Transformative social learning within a social-ecological community undertaking Climate Change projects; - Case of the REDD project at Pugu and Kazimzumbwi forest Reserves**".

The period to which this permission has been granted is from **19th May to 30th June, 2014.**

You are requested to proved necessary assistance which will enable him to complete the research study successfully.

Josephine Marango
For: REGIONAL ADMINISTRATIVE SECRETARY
COAST REGIONAL

CC:　Murray & Roberts Chair of Environmental Education and Sustainability,
　　　Rhodes Universtiy,
　　　SOUTH AFRICA.

　　　Ms. Victoria Uguumu Ferdinand

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# HALMASHAURI YA MANISPAA YA ILALA

BARUA ZOTE ZIPELEKWE KWA MKURUGENZI WA MANISPAA

S.L.P. Na. 20950

SIMU NA. 2128800
        2128805
FAX NO.   2121486

Ofisi ya Mkurugenzi
Manispaa Ilala

Kumb. Na. IMC/ AR.6/10                    09/05/2014

Afisa Mtendaji Kata,
Kata ya Chanika.
**Halmashauri ya Manispaa Ilala.**

*[handwritten note: mllati s/miaa - Kimwom, Tunuini ...'s a - - N2Aso Tafadhali mpemi ushiri-aano 16/5/2014]*

### YAH: KUMTAMBULISHA MWANACHUO VICTORIA UGULUMU FERNAND.

Husika na kichwa cha barua hapo juu.

Mtajwa hapo juu ni mwanchuo kutoka Rhodes University anaomba kufanya utafiti katika eneo lako.

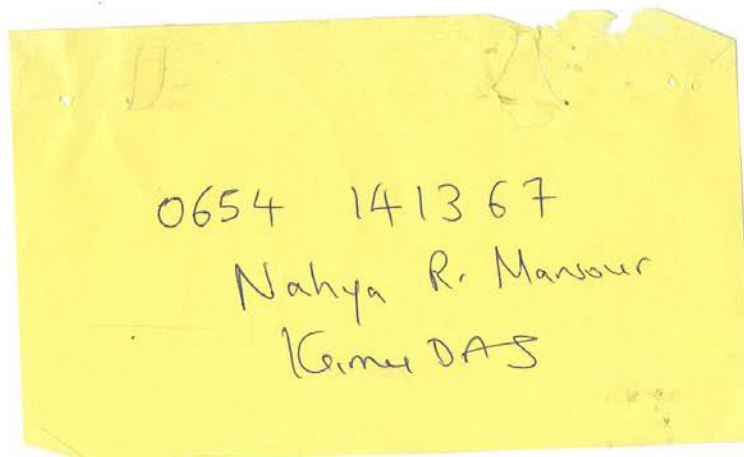Hivyo mpokeen na kumpa ushirikiano katika masuala yote yahusuyo **'Community learning and Social transformation on Climate change for Communities Surrounding Chanika na Buyuni'** kuanzia tarehe 20/05/2014 – 10/06/2014.

N. Kindamba
**Kny: MKURUGENZI WA HALMASHAURI
MANISPAA YA ILALA**

Nakala:-
    Mwanachuo

*[handwritten on yellow note:]*
0654 141367
Nahya R. Mansour
Kinu DAS

**Appendix 2: Protocol for guiding focus group discussion**

**MWONGOZO KATIKA VIKUNDI VYA MAJADILIANO**

1. Ni mabadiliko gani ya uhifadhi au mambo kuhusu uhifadhi wa Misitu ya Pugu na Kazimzumbwi mmeyapata katika jamii kufuatia miradi shirikishi ya Misitu? – Eleza viashiria vya matukio mbalimbali yanayoonesha kuwa jamii katika nyakati tifauti imeingia katika mifumo ya mabadiliko (viashiria vya tija au shida)
Ni kwa jinsi gani matukio yalivyotokea? Sababu gani zilipelekea? Mafundisho gani yalipatikana?

2. Je, katika kipindi cha mradi wa REDD, kumekuwa na mifumo ipi mipya ya uhifadhi? Eleza jinsi mifumo hiyo inavyoleta tija (au shida): katika uhifadhi?  katika jamii ya Kisarawe?

**Appendix 3: A copy of mirror data presented at the reflexive workshop for member checking**

*WARSHA YA JAMII INAYOZUNGUA PUGU NA KAZIMZUBWI*

*MREJESHO WA HOJAJIZILIZOFANYIKA MACHI 2013 KUHUSU MABADILIKO YA UHIFADHI WA MSITU KIPINDI CHA≥2000-2015*

<table>
<tr>
<th colspan="5">Mguso/Ufahamu wa jamii ya Pugu na Kazimzumbwi juu ya madiliko ya mifumo ya uhifadhi (Forest Reserves) katika miaka± 15</th>
</tr>
<tr>
<th></th>
<th>Hadi 2000</th>
<th>2000-2005</th>
<th>2005-2010</th>
<th>2010-2015</th>
</tr>
<tr>
<td>**Mabadiliko makuu ya Mifumo ya Hifadhi na taratibu zilizotarajiwa**</td>
<td>Maofisa misitu walikuwa kama askari walinzi, tuzuia wananchi wasiguse msitu wa hifadhi.<br><br>*Matarajio ni kwamba wananchi watajifunza kutii sheria za misitu kwa kuogopa adhabu mbalimbali zinazotolewa na serekali.*</td>
<td>Maofisa misitu walibadirika kuwa wadau washirika na jamii katika uhifadhi na ulinzi msitu wa hifadhi<br><br>*Kujenga uwezo kwa jamii, ushirika na miundombinu muhimu. Elimu ya Mazingira na Misitu ilitolewa kwa upana.*</td>
<td>Fedha za nje kuisha, serekali kufanya jitihada za kuendeleza uhifadhi shirikishi – Meneja wa Misitu.<br><br>**1.1.4**<br><br>*Ulinzi shirikishi ni mfumo unaorithiwa na serekali ndani ya mpango endelevu wa misitu ili kuboresha uhifadhi.*</td>
<td>Mradi wa REDD kuibua agenda ya PFM na kuongeza ziada kwa biashara ya hewa ukaa na ujasiriamali.<br><br>*Msisitizo kupanua wigo wa ushirikishaji jamii ktk umiliki wa Misitu, hatua zote za uendeshaji wa biashara ya hewa ukaa.*</td>
</tr>
<tr>
<td>**Mguso wa ufahamu kwa jamii husika ya Pugu na**</td>
<td>Misitu ni mali ya serekali, na uhifadhi ni jukumu la serekali inalofanywa na wataalamu waliosomea.</td>
<td>Serekali kuona umuhimu wa kushirikisha jamii katika shighuli za uhifadhi na katika maslahi ya</td>
<td>Shughuli za ushirikishwaji jamii zilipungua kasi. Mikataba haikupitishwa na serekali. Elimu bado</td>
<td>Jamii ilifarijika kufufua wazo la PFM. Mategemeo ya jamii ni kuona mabadiriko ili kufanikisha</td>
</tr>
</table>

| Kazimzumbwi | Jukumu la jamii ni kufata sheria za misitu na sio kushiriki katika uhifadhi.<br><br>Jamii itapata mahitaji toka katika misitu ya wazi ambayo ilikuwa ni mingi hivyo kuondoka msuguano | uhifadhi toka bidhaa za misitu na kodi za misitu. Usimamizi sahihi wa Misitu ni hazima endelevu kwa jamii husika inayozunguka hifadhi.<br><br>Jamii kuboreshwa na elimu iliyotolewa na kuhamasika katika swala la ushirikishwaji. | ipo kichwani lakini kushindwa kutambua mstari sahihi wa mawasiliano juu ya misitu wa hifadhi. Mfano; Nini kipitishiwe kwa Afisa wa wilaya na nini kwa Meneja misitu? Jinsi ya kuwasiliana na serekali bila kupitia mamlaka za wilaya/mkoa. | mikataba ya ushirika na serekali. Elimu na hamasa kuanza kufufuka mawazoni. Mvuto wa ziada juu ya faida za biashara ya Hewa ukaa. Jamii kutegemea hali ya msitu itaboreka tena na kurudisha huduma zake za asili baada ya miti kukua na kupanda mingine |

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**Appendix 4: A collection of papers from the three work groups during a reflexive workshops in 2014**

**Workshop Group No. One**

① VIGEZO KHS MCHAKATO WA REDD NA ADAPTIVE COLLABORATIVE MANAGEMNT

1. UWAZI — (WASTANI)
   — SABABU Taarifa hazikulenga (kuletwa) moja kuja vijijini ispokuwe mradi ulianzia ngazi ya wilaya na viongozi wa vijiji kuitwa ili kujulishwe mradi.

   HAKI — (MBAYA)
   — Kutokana na mradi kutoeleweka vizuri ilikuwa vigumu, kuwa na kupata haki stahiki

   UWELEWA — (WASTANI)
   — kwa Sababu jamii ilielweshwa k+k ngazi ya (w, tuliele wa kiasi haikuwa k+k tiwango kubwa.

2. MAKUNDI kuelewa — WASTANI
   — Makusudio, hayakutekelezeka k+k makubaliano hatukukaa kwa pamoja hivyo kutojua hesabu na faide kwa mjamaa hatu tujua kuwa mradi mwishoni 2015

3. MOTISHA — NZURI.
   watu walipwa motisha k+k. Shughuli walizofanya

4. UMILIKI NA URASIMISHAJI MBAYA — Hatuna mamlaka k+k misitu — kwa kuwa umilikini musumusu ambao hauna faide yoyote kwa jamii na hata hatunufaiki chochote ndai yake hata haki na sheria ziko kwa.

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(5)(1) UENEZAJI WA TAARIFA

(a) Taarifa — (NZURI)
Sababu zinafika

(b) usambazaji (WASTANI)
Sababu nyingine hazifiki kwa
wakati

(c) Njia za taarifa (WASTANI)
Sababu njia nyingine haziridhishi
kama vile em na mdomo ambazo
haziwafikii watu kwa asilimia 100
mara nyingine hazi

(5)(2) UWAKILISHI - (WASTANI)
Sababu baadhi makundi hayawa-
kilishwi kama vile walemavu na
wengineo

HOJA WAWAKILISHI (~~WASTANI~~) MBAYA
Sababu kuheshimiwa hakuna
ii kusikilizwa hakuna
kujaliwa mitazamo hakuna
kwa mfano wakiwa kitengoji
zo juu wakifika hawasikilizwi
wala kufuata (kwa mfano watu wakiagiza
miti wakati madiko wanaleta kiongoji

6. (a) MAKUNDI WASHIRIKI KUJIFUNZA KWA PAMOJA
NA KUFANYA MAAMUZI PAMOJA — (MBAYA)
Sababu hapakuwa na ushirikishwaji kwa jamii

(b) WASHIRIKI KUSOMANA (MBAYA)
NA KUELEWANA
Sababu jambo hilo halikuwepo

(c) WANAOJIONA WATAALAM KUKUBALI KUJIFUNZA
TOKA KWA WANANCHI WA KAWAIDA

6) Njia zilizo Bora kupitia mradi kama uwanja wa mafunzo — MBAYA

Sababu wataalam hakuwa tayari kujifunza kutoka kwa wananchi wa chini (jamii)

7 @ MAFUNGU YA PESA KTK UWEKEZAJI WA MUDA MREFU (MBAYA)

Sababu mradi haukufikia mwisho wake na hatujui kwa nini hii imetokana na kulokuwa wazi

b) Mipango ya Chini na Ujuzi pia ya budumu, ~~viongozi bora na usimamizi~~ ~~FABA~~ WASTANI

Sababu tulielimishwa ingawa si ktk kiwango cho kuridhisha (kwa mfano semina chache na za muda mfupi

c) Uongozi bora na Usimamizi (MBAYA)
Sababu mambo mengine yalifanywa kwa siri. Hata walipohojiwa viongozi walioonekana watatu hawataki kujua

8 ICT KTK MITANDAO KWA AJILI YA KUBADILISHANA TAARIFA
KUUNGANISHA MAMLAKA ZA JUU NA CHINI ILI KUFUNGUA USIKIVU (MBAYA SANA)

Sababu jambo hilo halikuwepo na lili onekana kama usaliti kwa wale wajuu

b) KTK maamuzi muhimu yalikuwa upande mmoja

**Workshop Group No. Two**

KUNDI NO÷ 2.

wastani.

1. Kujenga imani, wastani kwa sababu hatuku-
wa na hamasa ya kuhamasishwa katika
Mradi huu wa REDD.

B. Hapakuwa wazi utoaji wa taarifa Pamoja na
huu mradi hatukufahamu thamani yake.
na kujua unaishia mwaka gani?

MBAYA.

2 Hapakuwepo na Malengo ya pamoja kwa sababu
hatukushirikishwa makundi maalum yaliachwa
Mf. walemavu, viungo walemavu wa ngozi (ALBINO).
Pamoja na watoto

B. NZURI

3 Nzuri kwa sababu Motisha za Kiuchumi
zilikuwa zinatolewa
Mfano÷ kufyeka mikuza upandaji wa Miti
Uoteshaji wa Miche (Vitaru)

WASTANI

4 Wastani Urasimishaji Miliki za rasirimali
haukukamilika.
Mfano÷ Sheria ndogo hazikurudishwa
kutoka kwa wenye Mamlaka husika.

WASTANI

5 Uenezaji wa taarifa Muhimu ~~hawepo/~~
~~hakukamilika~~ kwa sababu hazifiki kwa
wakati. Miti ililikuwa kiletwa wakati wa
Kiangazi

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~~MBAYA~~ . WASTANI

6 Wastani kwa Maridhiano ya kujifunza
Kwa Pamoja na kufanya Maamuzi mamoja
yalifanywa baadhi ya vijiji.
Mfano maguruwe na ryeburu.
Pia wataalam hawakutaka kujifunza kutoka
kwa wananchi wa chini

8

MBAYA

7 Mbaya kwa sababu Mafungu ya fedha |Pesa
hayatoshelezi utekelezaji wa mrefu.
tatito hatujui mradi wenyewe bajeti
yake.

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**Workshop Group No Three**

KUNDI No 3?                                    29/05/2014.

1. Kuyenga imani. @ uwazi - ~~utifenyike vizuri~~
   Uaminifu.      ⓑ haki.
                  ⓒ uelewa.

Sibu. Uwazi - ulifanyike vizuri.
      @ kutambulisho miradi. kwa jamii
        kufanya mikutano ya mikuu ya vijiji

Haki - ulifanyike wasitani.
       @ Miradi hakuendelee kwa sababu
         Hatuoni utekelezaji wake.

Uelewa :- wasitani.
       @ Jamii haikupewa elimu ya kutosha
         juu ya miradi huu wa Redd.

No 2. Makundi kuelewa
      dhamira za mwingine
      Na kupendezwa Nazo:-

      @ mzuri; Jamii tunelidhia
      ⓑ wasiani. Sababu hatukuyus faida no
         hasara. zake.

3 Motisha za
  kiuchumi :- @ mbaya kwasababu ya
              Jamii haijafaidika shughuli za kinchumi.

4. Uhakiki wa umiliku
   wa Rasilimali :- MBAYA. kwa sababu
                    misitu ya serikali ni
                    mari ya serikali kuu.

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5. UENEZAJI wa
   TAARIFA Muhimu. (a) Vizuri
   (b) Hoja za jamii hazikuheshimiwa
   (c) Hakuna hoja iliyoheshimiwa
   Na kutekelezwa

6. Maridhiano to
   kujifunza kwa
   Pamoja na kufanya
   Maamuzi

   (a) Mbaya. Kwa Sababu
   Maamuzi hayo hayakushirikishwa

   (b) Vizuri. Kwa Sababu jamii
   imeshirikishwa kwenye utafiti
   mbaliombari uliyofanyika

   (c) Mbaya:- kwa Sababu
   hayo hayakutekelezwa.

7. Mafungu to fedha
   Kutoshereza Utekelezaji.

   (a) VIZURI MBAYA:-
   kwa Sababu fungu
   la fedha iliyopangwa
   hai kwa to shereza kwani
   jamii ilikuwa inafanya kazi
   tena kujitolea
   (c) Mipango ya elimu ya
   mids mrefu haikuwepo
   kwa alitendo bari vyo kwa
   neye makabrasi

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8. Mitandao ya kijamii
   kwa Ajiri ya
   Kubadilishana taarifa. (a) WASIANI. Hakutekelezeka
                                 kama ilivyokutejeko
                           (b) Njia za masiliano ziboleshe
                                 zaidi ili lwe Raisi kupata
                                 taarifa muhimu. NA kwa
                                 mda unaofaa.

9. Uongozi bora Ngazi ya
   ya Jamii, Wanaharakati
   au tafisi Iwayotetea
   Masilahi ya jamii.      (a) Mbaye:- Uongozi
                                 haujari ya wanafeli
                                 Masirahi ya Wananchi
                           (b) Uwongozi kujenga yadui
                                 kati ya wananizi na
                                 warigi na misitu

1