

SMALLHOLDER FARMERS' UNDERSTANDINGS OF AND RESPONSES TO CLIMATE CHANGE IN MALAWI: A CASE STUDY OF MPHUNGA GROUP VILLAGE, SALIMA DISTRICT

by

Munyaradzi Matthew Saruchera

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Supervisor: Professor Cherryl Walker

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Declaration

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Abstract

Climate change is one of the most pressing livelihood issues of our time, adversely affecting the natural environment and national and local economies. Addressing climate change is one of the 17 Sustainable Development Goals of the United Nations' new development agenda. Sub-Saharan Africa is among the regions that are most adversely affected by climate change. Among the poorest countries in the world, Malawi is vulnerable to declining soil fertility and extreme weather events. The country's high reliance on natural resources and subsistence farming exposes grassroots communities to the negative effects of climate change.

The purpose of my study was to investigate the understandings and experiences of smallholder farmers from Mphunga Group Village in Salima District in the Central Region of Malawi, and their responses to the impacts of climate change and extreme weather patterns on their livelihoods. Of particular interest was how farmers' interactions with different sets of social actors (experts and non-experts) influence their understandings of and responses to the phenomenon of climate change, as well how significant social capital is for their coping strategies. In using Mphunga Group Village as a case study, I employed an actor-oriented approach and the sustainable rural livelihoods framework in my conceptual framework. The actor-oriented approach provided the primary philosophical framework for examining farmers' perspectives on climate change while the sustainable livelihoods approach was used to analyse farmers' livelihoods, resource and institutional contexts, and the significance of social capital within that. I used a mixed-methods methodology, employing various research methods, while also reflecting on the limitations of the study and research ethics in relation to my experiences in the field.

The key findings of my study are as follows: i) awareness of climate change and extreme weather events is discernible among young and elderly farmers, but their understandings and experiences represent different knowledge systems; ii) social practices, networks, gender and education play an important role in influencing farmers' perceptions and understandings of climate change; iii) three main explanatory frameworks, namely: natural causes, spiritual and cultural lapses, and human activities, inform farmers' understandings of climate change causes, but a significant group was not certain about the causes of climate change; iv) livelihoods diversification, agricultural intensification/extensification and labour migration are key coping and adaptive strategies being deployed by farmers, and v) while funders, NGO and government agencies are playing an important role in supporting farmers to cope with and adapt to climate change, they have entrenched a dependency syndrome among farmers.

In this mix, social capital and social networks play a significant support role as informal safety nets for farmers as they cope with natural shocks and vulnerability to climate change.

Opsomming

Klimaatsverandering is een van die dringendste bestaanskwessies van ons tyd en het 'n nadelige invloed op die natuurlike omgewing sowel as nasionale en plaaslike ekonomieë. Om klimaatsverandering die hoof te bied is een van die 17 volhoubare ontwikkelingsdoelwitte op die Verenigde Nasies se nuwe ontwikkelingsagenda. Afrika suid van die Sahara is onder die streke wat die spit afbyt wat klimaatsverandering betref. Malawi, een van die armste lande ter wêreld, is besonder kwesbaar vir afnames in grondvrugbaarheid en al hoe meer uiterste weersomstandighede. Weens swaar afhanklikheid van natuurlike hulpbronne en bestaansboerdery is die land se gemeenskappe op voetsoolvlak veral blootgestel aan die negatiewe uitwerking van klimaatsverandering.

Met my studie wou ek bepaal wat boere op kleinhoues in die Mphunga-groepsnederstelling, wat in die distrik Salima in die sentrale streek van Malawi geleë is, dink en beleef namate hulle die impak van klimaatsverandering en uiterste weerpatrone op hulle bestaan probeer hanteer. Van bepaalde belang was hoe boere se interaksie met verskillende stelle sosiale rolspelers (kenners én nie-kenners) hulle begrip van, en reaksie op, die verskynsel van klimaatsverandering beïnvloed, sowel as die rol van sosiale kapitaal in hulle hanteringstrategieë. Ek verken dus hierdie kwessies aan die hand van die Mphunga-groepsnederstelling as 'n gevallestudie. Die studie gebruik 'n rolspelergerigte benadering en die volhoubare landelike bestaanskonstruk as konseptuele raamwerk. Die rolspelergerigte benadering bied die hoof- filosofiese agtergrond vir 'n ondersoek na die boere se sienings van klimaatsverandering. Die volhoubare bestaanskonstruk is op sy beurt nuttig vir die ontleding van boere se bestaanshulpbronne en institusionele kontekste, sowel as die belang van sosiale kapitaal daarin. Voorts volg ek 'n gemengdemetode-benadering tot die gevallestudie, gebruik verskeie navorsingsmetodes, en besin ook oor die beperkinge van die studie en oor navorsingsetiek met betrekking tot my ervarings in die veld.

Die kernbevindinge is soos volg: i) Sowel jong as bejaarde boere is bewus van klimaatsverandering en uiterste weersomstandighede, maar hulle begrip en ervarings dui op verskillende kennisstelsels. ii) Sosiale praktyke, netwerke, gender en opvoeding speel ook 'n belangrike rol om boere se opvattinge en begrip van klimaatsverandering te beïnvloed. iii) Boere se begrip van die oorsake van klimaatsverandering word deur hoofsaaklik drie verklarende raamwerke gerig, naamlik natuurlike oorsake, geestelike en kulturele oorvleueling, en menslike aktiwiteite, hoewel 'n beduidende getal boere nie seker is oor die oorsake van klimaatsverandering nie. iv) Die vernaamste hantering- en aanpassingstrategieë wat die boere gebruik, is diversifisering van bestaansmiddele, verskerping/uitbreiding van landboubedrywighede, en arbeidsmigrasie. v) Hoewel finansiers, nie-regeringsorganisasies en staatsagentskappe 'n belangrike bydrae lewer om boere klimaatsverandering

te help hanteer en hulle daarby te help aanpas, gee dit aanleiding tot 'n afhanklikheidsindroom onder boere.

Te midde hiervan speel sosiale kapitaal en sosiale netwerke 'n beduidende ondersteuningsrol as informele veiligheidsnetze vir die boere terwyl hulle natuurskokke en toenemende kwesbaarheid vir klimaatsverandering probeer te bowe kom.

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Dedication

To my late mum, Erica, and Mpho, my wife.

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List of Acronyms and Abbreviations

ADC:	Area Development Committee
AEC:	Area Executive Committee
CARD:	Centre for Agriculture and Rural Development (at Bunda University of Agriculture)
CARLA:	Climate Adaptation for Rural Livelihoods and Agriculture
CBOs:	Community-Based Organisations
CBRLDP:	Community-Based Rural Land Development Project
CCA:	Climate Change Adaptation
CCAP:	Church of Central Africa Presbyterian
COOPI:	Cooperazione Internazionale
CPC:	Civil Protection Committee
CSOs:	Civil Society Organisations
DfID:	Department for International Development (United Kingdom)
DoDMA:	Department of Disaster Management Affairs (Malawi)
DRR:	Disaster Risk Reduction
EU:	European Union
FANR:	Food, Agriculture and Natural Resources
FAO:	Food and Agriculture Organisation
FGD:	Focus Group Discussion
FISP:	Farm Input Subsidy Programme
GDP:	Gross Domestic Product
GNP:	Gross National Product
GHG:	Greenhouse Gases
HIV/AIDS:	Human Immunodeficiency Virus/Acquired Immune Deficiency Syndrome
IDS:	Institute of Development Studies (Sussex University)
IFAD:	International Fund for Agricultural Development
IIED:	International Institute for Environment and Development
IISD:	International Institute for Sustainable Development
ILRI:	International Livestock Research Institute
ILO:	International Labour Organisation
IPCC:	Intergovernmental Panel on Climate Change
IUCN:	International Union for Conservation of Nature
JICA:	Japanese International Cooperation Agency
LAPA:	Local Adaptation Programme of Action
MASAF:	Malawi Social Action Fund

MGDS:	Malawi Growth and Development Strategy
MHHs:	Male-Headed Households
MVAC:	Malawi Vulnerability Assessment Committee
NAPA:	National Adaptation Programme of Action
NEAP:	National Environmental Action Plan
NGO:	Non-Government Organisation
NOAA:	National Oceanic and Atmospheric Administration
NSO:	National Statistical Office
PAR:	Participatory Action Research
SADC:	Southern Africa Development Community
SAWEG:	Salima Women's Network on Gender
SEI:	Stockholm Environment Institute
SLA:	Sustainable Livelihoods Approach
SLF:	Sustainable Livelihoods Framework
SPSS:	Statistical Package for Social Scientists
UK:	United Kingdom
UN:	United Nations
UNEP:	United Nations Environment Program
UNFCCC:	United Nations Framework Convention on Climate Change
UNCED:	United Nations Conference on Environment and Development
UNDP:	United Nations Development Programme
UNEP:	United Nations Environment Programme
UNFPA:	United Nations Population Fund
UNHCR:	United Nations High Commission for Refugees
USAID:	United States of America International Development
VDC:	Village Development Committee
WFP:	World Food Program
WMO:	World Meteorological Organisation

Glossary of Chichewa Terms used in the Text

<i>Bawo:</i>	a traditional board game played for entertainment
<i>Bwana:</i>	sir, mister or boss
<i>Chikumu (singular):</i>	a group, club or association (both formal and informal)
<i>Dimba:</i>	a wetland garden
<i>Ganyu:</i>	piece work (often agricultural but can involve other forms of work)
<i>Gule waMkulu:</i>	a secret cult, involving a ritual dance practiced among the Chewa in Malawi, Zambia, and Mozambique and performed by members of the Nyau brotherhood, a secret society of initiated men
<i>Kakowa:</i>	special white birds associated with rains (in Mphunga)
<i>Kanunkhadala:</i>	a particular type of grasshopper associated with rains (in Mphunga)
<i>Kugoma:</i>	pit-planting
<i>Kukunkha:</i>	gleaning
<i>Kusintha kwa nyengo:</i>	the changing of the climate
<i>Mafumu:</i>	traditional leadership
<i>Mwera:</i>	frequent south-easterly winds
<i>Njuga:</i>	illegal gambling
<i>Nsima:</i>	stiff porridge made from maize meal
<i>Nthawi ya Alimi:</i>	farmers' issues (a radio programme)
<i>Opata:</i>	better-off
<i>Olemera:</i>	rich
<i>Opezako:</i>	better-off
<i>Osauka:</i>	poor
<i>Osauka kwambiri:</i>	very poor
<i>Ulimi Walero:</i>	good farming (a radio programme)
<i>Za Alima:</i>	for Farmers (a radio programme)
<i>Zvikumu (plural):</i>	groups, clubs or associations (both formal and informal)

Chapter 1: Introduction

1.1 The focus of this study

In this dissertation I investigate the understandings of and responses to climate change among smallholder farmers in Malawi, using Mphunga Group Village¹ in the Salima District on the western shores of Lake Malawi as my case study (See Figure 1.1.) Despite growing public debate in recent decades on the effects of climate change on rural livelihoods in developing countries, there has been relatively little discussion that foregrounds local farmers' perspectives and experiences and engages with the specificities of smallholder agricultural systems (Tshuma and Mathuthu, 2014). The literature on smallholder experiences and perceptions of climate change in Malawi is particularly limited; this study thus aims to make a contribution to scholarship and, ultimately, to improved policymaking in this regard.

Malawi is one of the poorest countries in the world. In 2016 it ranked 170 out of 188 countries on the Human Development Index of the United Nations Development Programme (UNDP), which puts it in the 'low' development category as defined by the UNDP (2016). It has long been vulnerable to declining soil fertility and extreme weather events such as recurring dry spells, seasonal droughts, intense rainfall and floods (Joshua, Ngongondo, Chipungu, Monjerezi, Liwenga, Majule, Stathers and Lamboll, 2016). Studies on climate change in Malawi confirm that the country's climate is naturally variable but recent decades have seen an increase in the frequency of extreme weather events, along with evidence of long-term changes in rainfall and temperature patterns which climate experts link to global climate change (Oxfam International, 2009; Stringer *et al*, 2009; Action Aid, 2012; Vincent, Dougill, Mkwambisi, Cull, Dixon, Stringer and Chanika, 2015; Grist, 2015). The country has experienced an increase in mean annual temperature since 2010 of almost one degree celsius, with further increases predicted (Grist, 2015:7; Mittal, Vincent, Conway, Archer van Garderen, Pardoe, Todd, Washington, Siderius and Mkwambisi, 2017).

Grist (2015:7) notes that Malawi experienced more than 40 weather-related disasters between 1970 and 2015, most of them occurring since the mid-1990s. Both crop and livestock farming are adversely affected by these hazards. Given Malawians' high reliance on natural resource utilisation and subsistence farming for their livelihoods, extreme weather is exacerbating existing vulnerabilities which Hara (2012) has summarised as encompassing high levels of poverty, low adaptive capacity, over-reliance on rain-fed farming and severe environmental degradation. The worst affected areas have been

¹ According to the Chief's Act (1967) of Malawi a 'group village' is a cluster of 10 or more smaller villages that make up one administrative unit; Mphunga Group Village comprised 13 villages at the time of my fieldwork.

the lakeshore districts of Salima in the Central Region (where my research site is located) and Karonga in the Northern Region, along with the Nsanje and Chikhwawa districts in the Shire Valley in the Southern Region (Mwenelupembe, 2011; Magombo, Kanthiti, Phiri, Kachulu and Kabuli, 2011; Hara, 2012; and Joshua *et al*, 2016).

Against this background, my study explores the perspectives of smallholder farmers on climate change, with a particular focus on the significance of external experts in shaping their responses to its impacts as well as the role of social capital, which many analysts regard as a critically important asset for otherwise resource-poor households (Grothman and Patt, 2005 and Osei, 2016). I am more interested in how farmers' interactions with the many different sets of climate experts that they encounter through the government agencies, local non-governmental organisations (NGOs) and international aid organisations active in their districts are influencing their understandings of the phenomena that these experts have identified as 'climate change' and how this, in turn, is impacting on farmers' decision-making around their livelihood strategies. I am also interested in the role of social networks and levels of social cohesion in smallholder farmers' response strategies, including its role in shaping access to the resources that external experts and development agencies are able to offer.

In exploring these issues, I have adopted an actor-oriented approach (Long, 2001), linked to the sustainable livelihoods framework originally developed by the British Department for International Development (DfID). An actor-oriented approach to development insists on regarding poor rural people as actors in their own right, not simply the objects of research or recipients of externally led aid and development interventions. Central to the sustainable livelihoods framework is a concern with the ability of social actors to enhance their lives in the face of shocks and stresses by deploying multiple 'capitals' (generally divided into natural, human, economic or financial, social and physical capitals) as major livelihood assets (Scoones, 1998, 2009 and 2015). According to Morse and McNamara (2013), households with fewer livelihood assets find it more difficult to cope with change (whether climatic, policy or social) than better-resourced households and take longer to recover from the resulting shocks and stress on their livelihoods.

In the sustainable development framework, the ability of farmers to respond effectively is determined not only by their ability to access material assets, but also by their ability to mobilise social resources such as social networks and the capacity to act collectively – in other words, by their ability to mobilise what the framework identifies as social capital. In exploring the importance of social networks in Mphunga farmers' responses to climate change my study thus also engages with theories of social capital. While I recognise critiques of the salience of the concept of social capital in the sociological literature (discussed in Chapter 3), I have found the concept of social capital as a strategic livelihood asset analytically useful in accounting for the importance of social networks, collective action and social

cohesion among poor people as assets of last resort in responding to external shocks that require more than an individual or a single household's response. As argued by Christopolos, Anderson, Arnold, Galaz, Hedger, Klein and Le Goulven (2009:12) who farmers know can determine their timely access to relief aid and to appropriate knowledge with which to adapt to the effects of climate change over the longer term. In this way, social capital facilitates access to other forms of capital that are needed to pursue desired livelihood outcomes and well-being, such as financial capital.

In this introductory chapter I first set out my formal problem statement and rationale (section 1.2) and then summarise the overarching research questions that sharpen my research design (section 1.3). This is followed by a brief discussion of the definitions of key terms I use throughout my study, including smallholder farmer, household and community. In section 1.5 I provide a brief discussion of how I came to my topic, by way of background, followed in section 1.6 by a brief introduction to my research site. I conclude this introductory chapter with an outline of how my study is structured across the other chapters of the dissertation (section 1.7).

1.2 Problem statement and rationale

Concerns around global warming and its consequences for climate change are most loudly articulated in the developed world, but the immediate effects are felt most adversely by poor rural communities in the global south who are heavily dependent on natural resources for their livelihoods. For the developing world, the threats posed by climate change in future hold little meaning because people are already struggling with its impacts today.

There is mounting evidence that climate change is adversely affecting resource-poor farmers and their livelihood activities across the globe (Makuvaro, 2014; Joshua *et al*, 2016; Mugambi, 2017 and Dokken, Van Niekerk and Loubser, 2018; United Nations Environment Programme (UNEP, 2018). The frequency of hazardous weather events resulting from climate change reduces the capacity of farmers such as those in my research site to cope and renders them increasingly dependent on experts for advice on how to adapt to the changing conditions and mitigate their most adverse consequences. However, the entry of climate experts into their world brings additional challenges for farmers, including having to contend with inconsistent messaging as well as competing organisational structures. The information on climate change that different experts and agencies convey can be overly simplified or inaccurate – they can thus misinform as well as inform their audiences and undermine farmers' own understandings of their changing environment and independent capacity to respond appropriately and timeously. Furthermore, policymakers often reduce the livelihood challenges smallholder farmers face to technical

problems that can be solved through technical interventions (such as new farming technologies) that external experts are best able to provide (Leach and Mearns, 1996:460).

Figure 0-1: Map of Malawi, showing Salima District in the Central Region



Source: Malawi Geological and Survey Department, 2013.

In this approach the lived realities and local knowledge of the smallholder farmers who are most directly affected by the changing conditions and most familiar with their environment tend to be disregarded (Tshuma and Mathuthu, 2014; Osei, 2016 and Joshua *et al*, 2016).

An important starting point for this study is a concern that the international discourse on climate change in sub-Saharan Africa is largely driven by the professional interests of the scientific and other experts in the arena of international development aid, research and policy. Various categories of experts interact primarily on a peer-to-peer level (for example scientist to scientist, scientist to funder, scientist to policymaker), in which the focus is often on technical issues, within a climate change discourse that is readily understood among themselves (Demeritt, 2011:307). As much as climate scientists are engaged in the production of knowledge around a major societal concern, they also serve their own research and career interests. This creates a hierarchy of knowledge in which scientists are the creators, at the top, with the intended beneficiaries of this knowledge falling below them, and smallholder farmers in poor countries like Malawi positioned at the very bottom end of the knowledge chain. Also notably absent in the global climate change discourse are the voices of experts from developing countries, even though analysts such as Bushan (2014) argue that they could bring important insights on climate risks and the social factors that frame local knowledge, opportunities and limitations.

As this discussion makes clear, the field of climate change science and its associated policy development and implementation is laden with power relations globally, nationally and locally. Globally, the international policy and governance of climate change adaptation is coordinated and supported by the United Nations Framework Convention on Climate Change (UNFCCC) which provides funding and technical support to developing countries in support of both their adaptation and mitigation strategies; here adaptation refers to strategies aimed at strengthening the capacity to adjust to the negative impacts of climate change, while mitigation refers to strategies aimed at reducing the causes of climate change, for instance through reducing carbon emissions (The Energy and Resources Institute (TERI, 2016).

In this study I focus on adaptation strategies, because, as is discussed further in Chapter 2, climate change mitigation is generally acknowledged as not something that smallholder farmers can address. The mechanisms for adaptation are, however, themselves embedded in complex social relations at the local level and fraught with politics which influence the outcomes of adaptation processes (Nightingale, 2017). Struggles over scientific authority and recognition play out in local dynamics around control over and access to dwindling natural resources. Furthermore, as my case study shows, competition for relief aid from NGOs and government sources becomes a platform for local actors to claim authority and determine who is “authorized to govern, and who is considered needing (or worthy of) assistance”

(Nightingale, 2017:13). Development projects that seek to empower farmers to build adaptive capacity and manage their resources inevitably produce realignments of local power and knowledge.

At the same time, it is important to acknowledge that farmers have always dealt with natural hazards, including climate variability, and in this process have developed resilience and important local knowledge about their environment. In Malawi, traditional coping mechanisms have included shifting homes to higher ground during the rainy season, storing grain in specially-built local granaries, sinking boreholes during droughts, utilising wild fruits and vegetables as food sources in lean times, and migrating and/or undertaking local piece work to supplement farming activities. However, there is mounting evidence that in recent years many farmers have been struggling to deal with the frequency and intensity of household shocks and that their adaptive capacity is thereby being further undermined (Action Aid, 2006; Red Cross Society of Malawi, 2007 and Joshua *et al*, 2016). Already in 2007 the Red Cross Society of Malawi expressed concern that the increase in “frequency, intensity and magnitude” of droughts and floods over the previous decade had “adversely impacted on food and water security, water quality, energy and the sustainable livelihoods of rural communities.” This has called for additional coping and adaptation strategies against the more intense and frequent extreme weather events.

Furthermore, here referring specifically to the Southern Region, while previously Malawi’s tea and sugar plantations had provided employment for many households, this sector of the economy was unable to absorb the increase in the number of people seeking work as a result of crop failures resulting from adverse weather conditions (Red Cross Society of Malawi, 2007). The ability of households that are already dealing with repeated shocks to adapt to the additional burden of increased climate-related impacts becomes further impaired as traditional community structures and extended family relations become eroded.

In this context farmers are likely to become increasingly dependent on the international development aid sector for help in adapting to the new conditions and alleviating their most adverse consequences. In this scenario, local government services and NGO extension officers can play a key intermediary role, acting as links between international experts and smallholder farmers, despite not themselves being officially regarded as experts on the subject of climate change. However, according to Oxfam (2009:9) there is considerable inconsistency, lack of coordination and confusion around the fundamentals of climate change and possible adaptation strategies in Malawi’s extension services sector. This results in poor information dissemination and frustration among smallholder farmers who receive inconsistent messages about climate change.

At the same time, while the experts tend to compartmentalise the phenomenon of climate change as a scientific issue that can best be understood and solved in scientific ways, smallholder farmers view the unusual weather patterns they experience as “a practical livelihood issue” (Barugh and Glass, 2010:1). Their need to understand and respond to climate change is informed primarily by their need to secure their livelihoods, rather than by a need to understand climate science as such, or to drive policy processes. Regarding climate change as the preserve of experts disempowers them from engaging with the challenges of climate change in their particular contexts with confidence and authority. As noted by Wolff (2012:19), “although they (poor people) might not necessarily understand the science and processes of climate change, they are often, and successfully so, dealing with climate risks and disasters.”

A growing body of research on climate change is thus according greater importance to local peoples’ understandings of the phenomenon (Grothmann and Patt, 2005; Maddison, 2006; Tshuma and Mathuthu, 2014). How farmers interpret what is happening has major implications for their perception of risk and the decisions they subsequently make around adaptation or mitigation. Their ability to respond effectively requires recognition of the long-term changes in climate and the consequences for current livelihood strategies and decisions around their farming practices. Also important here are their reserves of social capital they are able to draw on through their local solidarity networks when faced with extreme life stressors such as natural disasters. Important sources of support during natural disasters are family, friends, neighbours and reciprocal relationships found in informal clubs and associations.

In Malawi few academic studies have attempted to make the direct link between policy discourse and local practice, and not much has been done to mainstream local level adaptation strategies into national policy. The limited material on smallholder farmers’ understandings of climate change justifies research such as this study that engages critically with these issues. Because geographical areas are heterogeneous, with different micro climates and social systems, site-specific research such as this study undertakes is important in order to capture the full complexity of farmers’ engagement with the phenomenon of climate change in resource-poor environments (Gbetibouo, 2009).

Stapleton, Nadin, Watson and Kellet (2017:14) note that: “Storms, floods and droughts have occurred for millennia, and while climate change is demonstrably altering the nature of climate-related hazards and trends, not every hazard is completely attributable to or influenced by climate change.” Here it is important to note that whether the climate is indeed changing for the reasons and causes outlined by climate scientists is not the focus of my study. I am not engaging the science of climate change as such, nor delving deeply into the arguments for and against the current consensus that has emerged among climate scientists on the phenomenon. I take as authoritative the evidence for the reality of climate

change that has been evaluated in the various reports of the globally respected International Panel on Climate Change (IPCC, 2007, 2009, 2013, 2014a, 2014b and 2018), all of which show that global warming is occurring and impacting increasingly heavily on the Earth's climate system.² (This body of work is briefly reviewed in Chapter 2). I have sought, rather, to investigate smallholder farmers' understandings and responses to climate change and its impact on their livelihoods, on the grounds that understanding climate change from the perspective of these farmers is crucial for effective policy formulation and intervention programmes. In so doing, I have worked with a social constructionist approach to knowledge, an approach that validates these farmers' knowledge systems as not only worthy of understanding but also authoritative and insightful in their own context.

1.3 Research questions

My over-arching concern in this study is to understand how smallholder farmers in Malawi themselves understand the phenomena that experts describe as climate change and how they (the farmers) are responding to this in their daily lives, through a case study of a Group Village that has been particularly hard hit by adverse weather events in recent decades. As already noted, I am particularly interested in how farmers interpret the information and advice that they are receiving from experts on climate change, and what role social capital is playing in the coping and/or adaptation strategies they deploy.

The main research questions that this dissertation has sought to answer can thus be summarised as follows:

1. What are smallholder farmers' understandings of climate change and its impact on their livelihoods in my study site, and what informs these understandings?
2. How are smallholder farmers responding to the effects of climate change? More specifically, what coping and/or adaptation strategies are they using to secure their livelihoods?
3. Which expert agencies are active in my study site and how are farmers engaging with them and responding to the information, advice and support they are offering?
4. How significant are social networks and social capital in farmers' response strategies?

1.4 Definitions of key terms

At the outset it is important to define how I am using three terms that I rely on regularly throughout this study, namely: smallholder farmer, household, and community.

² Note that my primary fieldwork and writing up of my research was completed before the most recent climate change conference that was held in Poland in 2018.

1.4.1 Smallholder farmer

Smallholder farmers are widely recognised as significant producers of food and drivers of many African economies. In the context of Malawi, most farmers are smallholders who, although resource poor, produce about 80 percent of the country's food and 20 percent of its agricultural exports (FAO, 2000).

However, defining a smallholder farmer is not an easy task, with a range of context-dependent definitions found in the literature. While their land holdings are small (in the case of Malawi commonly little more than one hectare), defining smallholder farmers simply on the basis of the size of their land holdings or the number of livestock they own is limiting because “a small farmer with market access producing a high-value crop and another farmer on the same size farm cultivating a staple crop for home consumption can hardly be compared in a meaningful sense” (Von Braun, 2005:23). Other key features that are regularly cited are that they commonly practise a combination of both subsistence and commercial agricultural production that they have inadequate resource endowments in comparison to commercial farmers producing solely or mainly for the market, and that they are heavily reliant on family labour (Taylor, 1999; Hall, 2009; Narayanan and Gulati, 2002; Dixon, Taniguchi and Wattenbach, 2003). Here it is also important to note that globally women play a very important role in smallholder farming systems, including throughout sub-Saharan Africa. At the same time, Taylor (1999:75) stresses that smallholder farming is steeped in social relations and that while smallholder farmers may be people “who are structurally and materially constrained” they “still engage the wider context which restricts their actions as active social actors.”

Thus whilst smallholder farmers may differ among themselves in their individual characteristics, asset base, use of external inputs and reliance on family or hired labour, there are commonalities in terms of the constraints they face around access to land, labour, markets and technical and other agricultural inputs, with consequent negative impacts on individual and household incomes. Despite these constraints, in a country like Malawi smallholder farming is central to the livelihood strategies of rural people.

1.4.2 Household

A classic definition of the household is that offered by Ellis in 1998: “A household is conceived as a social group which resides in the same place, shares the same meals and makes joint or coordinated decisions over resource allocation and income pooling” (1998:6). The ties binding household members are usually strongly but not exclusively kinship-based. However, the notion of household as involving

a group of actors who are “committed or bound by choice or custom to act as one unit in relation to the rest of the world” (Ellis, 1998:6) has also been subject to critique, because of the significance of power relations and divisions within households, notably along the lines of gender and age. Thus, the question of who benefits from household assets within a household is not the result of a process of philanthropic maximisation of all members; rather, it is more likely to be an “outcome of unequal and often gendered intra-household power relations” (Du Toit and Neves, 2007:12). These authors note that households are far more complex than is often conveyed in the general development literature. As a result, they argue that “the household, instead of being perceived as a ‘unit of analysis’, should perhaps be characterised as a ‘small open system’ that is coherent, but porous” (2007:12).

This point is supported by Ellis (1998) and Scoones (1998) who have argued that the interrogation of livelihood diversification requires an understanding of the very complex diversity of social interactions, mobility and location among household members. Examples of this complexity include the role of non-resident family members who are not physically present to share meals yet may contribute significantly to decision-making and the livelihood outcomes and well-being of the resident group, along with “split families” who straddle rural/urban and home/foreign country divides (Ellis, 1998).

1.4.3 Community

Community is another complex concept that can be used to cover a range of social groups across different scales. While generally the concept has a spatial dimension, referring to a group of interacting households living within close proximity to each other, it can also refer to social units with less tangible physical dimensions, for instance the community of climate change scientists spread across the globe. Thus Bartle (2007:1) states that a “community is a construct, a ‘sociological construct’...a set of interactions that have meaning and expectations between its members. We cannot see a whole community, we cannot touch it, and we cannot directly experience it.” In similar vein, Taylor (1999:83) describes a community as “a daily construct that is achieved by overcoming cleavages of class, ethnicity, political allegiance and gender.” The idea of community may also stretch over time, beyond its geographically resident members at a particular moment – it was “already existing when all of its current residents were not yet born, and it will likely continue to exist when all of the people in it have left” (Bartle, 2007:1).

Furthermore, communities are not homogenous. Not only are there power relations and cleavages in terms of age, gender and wealth within them. Often smaller communities are nested within larger communities, for example ethnic sub-groups, making the boundaries of what constitutes “the community” fuzzy and porous. In the case of spatially defined “local” communities, marriage and other

social relationships may link households and communities across village boundaries, as is clearly the case in my study site, where, because of repeated flooding, members of the Mphunga community have been forced to relocate from their original homes and settle in a dispersed pattern in neighbouring villages. While they no longer live in a clearly demarcated neighbourhood, the administrative unit of Mphunga Group Village has not been replaced and many people still retain their identity as members of the Mphunga “community” (although, as I show, that is also beginning to break down). As community boundaries become wider, heterogeneity within the group (for example differences in language, origin, religion or other features) increases (Bartle, 2007). Thus, although a community can be defined in a particular way, social relationships within it can be experienced quite differently by its various members. As such, there is a need to consider the complex dynamics, difference and multiplicity of competing interests and power struggles located in many community settings. Taylor (1998) and Bartle (2007) allude to the making, redefining and reworking of community as an on-going process.

In this study I thus work with the notion of community as a construct that is made and unmade over time. I also work with the concept of local as defined by Christopolos *et al* (2009:5) to refer to “the interface between households and grassroots organisations, as well as the meso-level structures of public and private service organizations and of non-governmental organisations (NGOs).” In my own study context this would also apply at the level of village, group village, area/traditional authority and district that are present in Salima District and Mphunga Group Village. An understanding of local realities is important for understanding the shifting boundaries of what constitutes “the community” in a given context.

1.5 Background: my route to this study

My interest in the study and practice of sociology goes back some 20 years to when I first started my professional career in the field of community-based natural resource management as a Programme Officer with the International Union for the Conservation of Nature (IUCN). I have continued to be interested in the sociology of development since then, in my work with communities and their livelihood strategies and in my agricultural and environmental work. For me, sociology has always been about understanding human interactions. Through this study I have embarked on a grand journey that has taken me into the heart of the world surrounding me, as an observer, a participant and a co-creator of meaning. According to Sosteric (2010) while sociology is not necessarily revolutionary, potentially it gives us the ability to transform the world, making it a powerful and exciting discipline.

As I interacted more closely with smallholder farmers through my rural development work in different countries in southern Africa, my research interest in understanding how resource-poor smallholder

farmers engage with the increasingly prominent scientific discourse around climate change in the field of rural development grew. Given that some of my work was in Malawi, a country that has been identified as particularly vulnerable to the consequences of climate change, I decided that this would be an excellent place in which to locate my study. In 2010 I travelled to Salima District and met with farmers through my professional contacts in three international NGOs that were working with local smallholder farmers on climate change issues – Cooperazione Internazionale (COOPI), the Red Cross and Action Aid. These meetings affirmed the value of my proposed study as well as offering me an entry point for fieldwork – in 2010 Mphunga Group Village was officially recognised as the village that had been most adversely affected by floods in Salima District over the previous 17 years (Environmental Affairs Department, 2010a). It is one of the national sites for Malawi's National Adaptation Programme for Action (NAPA) that has been mandated under the UNFCCC since 2001 and has been the target of livelihood resilience development work involving several NGOs and funders over the years (Action Aid, 2012).

Thereafter, following a survey of secondary literature on climate change in Malawi, I met with different structures in the District to introduce my study and secure the approval of the Salima District Assembly for it. The visits and contacts I made with local farmers, traditional authorities and officials from Salima District Assembly in this time helped me build relationships of trust with local people and gain insights into their experience of displacement by floods. In the initial scoping phase of my research in 2010 I also got to learn more about local traditions and social protocols. These interactions confirmed the need for research on the impacts of climate variability and climate change on smallholder farmers and related livelihoods (for example, artisanal fishing) that recognises the complexity of smallholder crop and livestock production systems, and factors non-climate-related stressors on rural livelihoods into the analysis. Viewing climate change as a special, standalone issue creates unnecessary competition among role players over resources and development priorities.

As discussed in more detail in Chapter 4, my core fieldwork was conducted in 2012-2013, in which time I was able to base myself in my research site for three months (April – June 2013) and then in March and July 2013 I made back and forth weekly or bi-weekly trips between Lilongwe and Salima and during this period I also stayed at the site for a week or two at a time. Between January 2010 and October 2013 I made a total of 10 trips to my research site during both rainy and non-rainy seasons (See Appendix 1). I was also fortunate enough to be able to return to my research site for a few days in April 2016 and November 2017, in which time I was able to revisit and reflect further on my findings. Over the course of the time I spent in Mphunga community, I witnessed both floods and dry spells and was able to see how farmers, local NGOs and government departments responded to the disasters and the significance of relief aid and practical assistance. I attended village and district authority meetings at which different livelihood issues and the mobilisation of urgent relief aid for those affected by floods

were discussed and observed processes involving different village-based and district structures (for example, Village and District Civil Protection Committees, informal farmers' clubs and associations and Village Development Committees). During such meetings, I gained insights into how the different structures and networks communicated, as well as how they coordinated aid during emergencies like sudden floods at night.

When I first embarked upon on this study I thought of myself as a neutral outside observer, situated somewhere between the farmers and the experts from the various agencies engaged in climate change and disaster risk management issues. However, over time I found that my positioning shifted according to context. As local farmers became more familiar with me I found myself being addressed on some occasions in familial terms (son, brother, *bwana* – sir or boss and *achimwene* – friend or acquaintance) by both elderly and younger farmers, which I took to be partly informed by the fact that historically we share some cultural norms and practices, given the socio-cultural ties and common political history between Malawi and Zimbabwe (from where I originally come). In response, I insisted on relating to the farmers as a student who sought to learn from their knowledge and experiences. At the same time, although I was careful not to present myself as a climate-change expert, I found myself positioned as something of a knowledge broker between farmers and official experts and had to tread carefully to avoid controversy and not upset the farmers' working relationship with officials. Furthermore, as a researcher associated with a university I was also seen as an 'expert' to some extent in the eyes of the farmers. I thus found that my relationship with them shifted between being a 'climate-change expert' when farmers presented me with questions and sought my views on the issue of climate change and a non-expert when I joined them in everyday activities (for instance attending funerals or working in the fields), interacted with them socially (playing board games, watching village sports, frequenting tea and beer drinking spots) and supported them in engaging with official experts.

I also became aware of the intermediary role that certain local farmers were playing in mediating the interaction between their fellow farmers and the external experts. As community members and farmers, these intermediaries were not regarded by their fellow farmers as official experts in their own right, but, rather, as the agents of the "real" experts (among whom I was sometimes counted). This was despite the fact that the local intermediaries had acquired semi-specialist farming skills from their association with the perceived experts, and generally had considerably more knowledge about local dynamics than myself. At the same time, and regardless of their educational qualifications, the intermediaries perceived themselves as experts in relation to their fellow farmers. Through these engagements I became more aware of my own intermediary status and sensitive to the different interpretations among farmers around what counts as expertise and who could be considered an expert on climate (and other) issues.

In developing my research design, I endeavoured to work with these insights. Using a case study approach, I developed a mixed-methods research design that incorporated observation, some participatory action research techniques, focus group discussions, life histories, semi-structured interviews and a household survey. As already noted, I also employed the actor-oriented approach in the overall philosophical and theoretical framing of my study.

1.6 Research site

My research site, Mphunga Group Village, falls under the Ndindi Traditional Authority (T/A) in Salima District, one of ten T/As established in the district (Salima District Assembly, 2011:77). (See Figure 1-2). At the time of my study the group village comprised 13 villages formally (one of which also bore the name, Mphunga) and was recognised as one of 61 group villages under the jurisdiction of the Ndindi T/A. On the ground, however, the settlement situation was far more complicated, because of the impact of repeated flooding which is described further below.

The Government of Malawi has identified Salima as one of six districts in the country that are most vulnerable to climate change, as well as one of two districts in the Central Region that are most prone to climate-induced flooding (along with occasional dry spells) (Environmental Affairs Department, 2010a:17). The district borders Lake Malawi and has a total land area of 2,196 square kilometres (Salima District Assembly, 2011:77). There are twelve main rivers that flow into the lake and are prone to flooding, including the Lifidzi River on the banks of which Mphunga is located, where it joins the lake. In 2012 the District had a population of around 350,000 people that was growing at an annual rate of 2.5 per cent, with 41 per cent of the population classified as poor (Malawi National Statistics Office, 2012:204). At 80 per cent of the population, the Chewa people constitute the largest ethnic group in the District, followed by the Yaos, the Tongas, and then the Tumbuka and Ngoni (Salima District Assembly, 2011). Christianity (practised by 60 per cent of the population) and Islam (practised by 30 per cent) are the main religions, with the balance of the population observing traditional or no religious practices. According to the Salima District Assembly (2011: 15-16): “Both matrilineal and patrilineal marriage systems are common, while polygamy and widow inheritance are also part of the local culture.”

The main sources of livelihoods are farming, fishing and small-scale businesses. Fishing and employment in tourist hotels and lodges are important sources of income for communities along the shores of Lake Malawi while crop farming is the leading source of income in the uplands. Inward and outward migration takes place all year round. Population growth is, however exerting extreme pressure on the existing land and natural resource base, with crop cultivation, human settlement, tourism and the utilisation of natural resources such as fuel wood and wetlands all competing as land uses.

Figure 0-2: Map of Ndindi Traditional Authority showing Mphunga Group Village and neighbouring Kandulu Group Village (in red, in the extreme north of the district)



Source: Malawi Geological and Survey Department, 2013.

These pressures are resulting in the loss of soil fertility, land degradation and deforestation, as well as pollution and the depletion of water resources. According to Seaman, Petty and Acidri (2005:4): “Salima has one of the highest rates of soil erosion in the country, along with extensive deforestation.”

At the time of my fieldwork Malawi’s land dispensation still recognised three categories of land: customary (ultimately vested in the state), public and private; as discussed in Chapter 5 in 2016 a slate of new land laws reclassified land as either public or private. Most land in the Salima District (78 per

cent) is held under customary tenure and used for smallholder farming. The remaining land was divided between private tenure (18 per cent), held mostly by estate farmers practising large-scale commercial farming, and public tenure (4 per cent), i.e. government land used for various public purposes (Trocaire, 2014). In 2011 average family landholdings were a little over one hectare with maize the major food crop, followed by sweet potatoes, cassava and rice (Salima District Assembly, 2011:19).

Salima District experiences a generally warm tropical climate, with mean annual temperatures of 22 degrees celsius. Temperatures are highest between October and November and lowest in June and July (Salima District Assembly, 2011). As already noted, the district is prone to severe livelihood disruptions due to the annual floods that are often followed by dry spells in the same farming season (Hara, 2012; Action Aid, 2012); the Ndindi, Msosa, Mwanza and Khombedza T/As have been particularly badly affected (Salima District Assembly, 2011). (See Figures 1-3 and 1-4 for 2013 images of the impact of flooding on people's homesteads). In 2010 Malawi's Environmental Affairs Department (2010b:218) reported that noticeable shifts in the climate pattern and long-term changes in rainfall and temperature patterns were being recorded for Salima and other districts. This is wreaking havoc on smallholder farmers who are most vulnerable to the impact and longer-term consequences of flooding.

Figures 1-3 and 1-4: Houses affected by floods at the Mphunga Group Village site



Photo: M. Saruchera, 10 January 2013.

In the case of Mphunga Group Village, periodic flooding in the past regularly led to residents relocating temporarily to higher land that was recognised as belonging to the neighbouring villages of Kandulu (also in the Ndindi T/A) and Sani Maganga (in the neighbouring Pemba T/A). However, since the early 2000s Mphunga households have been settling in these temporary relocation sites on an increasingly permanent basis. The relocation history of Mphunga Group village, discussed in more detail in Chapter 6, is complex. Whilst farmers' memories of the relocation processes and the push factors are vivid, there is no single written account or consensus on the process of relocation and precise dates involved, and the oral accounts narrated to me by different farmers were not always consistent with each other. There was general agreement, however, that the relocation process that has resulted in the current settlement

pattern took place in three main phases, over the 2006/2007, 2007/2008 and 2010/2011 farming seasons. Furthermore, farmers did not follow a formal, collective process in arriving at the decision to relocate. Rather, individual households made the decision to move to wherever they could secure land to build their houses, based on a range of considerations, including the extent of damage they had suffered from the floods, their ability to restore what had been damaged, as well as their ability to identify an alternative piece of land on which to settle and/or farm and the availability of resources to secure that land (effectively to lease it from the hosting community) (Core Reference Group Discussion, March 2013; Chief Chadza, Interview, 2013).³

At first most farmers chose to move out of Mphunga to higher ground on a temporary, seasonal basis, but over a period of time this strategy proved too costly in the face of repeated floods. According to my local informants, many farmers hoped or believed that the flooding would stop after a few years and they could return to their old homes. With this in mind they initially built cheap, temporary structures at their resettlement sites. Another factor was that their hosts did not want them to establish permanent houses for fear that they would settle permanently on what was the neighbours' land; these "hosts" also resorted to increasing the lease fee they were charging the Mphunga farmers (Core Reference Group Discussion, April 2013).

However, from about 2013/2014 farmers started improving their relocation houses, often with remittances from family members who had migrated outside Malawi. As the prospects for returning to their previous settlement site become less and less likely, some Mphunga people in the Pemba TA have begun to form new villages and elect their own traditional leaders, and these emerging villages are gradually being absorbed into the Pemba TA (Chief Chadza⁴, Interview, 2013). In Kandulu, where the local population is primarily Muslim and of Yao origin, some of the Chewa people from Mphunga are converting to Islam, although maintaining some of their former cultural practices. For the most part, however, members of the Mphunga Group Village are still recognised as such, with a recognised Group Village Head, even though they now live interspersed among neighbouring villagers. To this day, those Mphunga households with wetland gardens (*dimba*) in their former settlement area still farm them during the winter season (when the threat of floods is minimal). Winter farming augments the produce they are harvesting in their new locations, where they have had to rent or buy pieces of land illegally, through private arrangements.

³ The Core Reference Group is the name I gave to a group of 56 smallholder farmers who were identified by the Mphunga Group Village leadership as representatives of each of the 13 villages constituting Mphunga Group Village (four from each village) to assist me with my study.

⁴ Chief Chadza presides over one of the Mphunga villages and he is a direct descendant of Chief Mphunga. He is also an avid oral historian and highly regarded as a source of the group village's history. **NB:** *All the community members that I interviewed like Chief Chadza and other are listed in Appendix 7, and not in the references list.*

These developments underscore the complexity of defining “community” as a stable entity but also point to the importance of ties to particular pieces of land in shaping not only livelihoods but also social relationships.

1.7 Chapter outline

This dissertation consists of nine chapters, including this introductory chapter. In Chapter 2, I review the general literature on climate change, with a focus on the scientific discourse, the international policy framework and national action plans, and the issue of climate change adaptation. In Chapter 3, I discuss my conceptual framework which, as already noted, is structured around three intersecting axes: i) an actor-oriented approach, ii) the sustainable livelihoods approach, and iii) within that, social capital as an important asset in the livelihood strategies of smallholder farmers. In Chapter 4, I present my research methodology and data analysis methods. As already noted, this is a sociological study using a mixed-methods research design in which a range of complementary data collection methods have been deployed. In Chapter 5, I present an overview of political, environmental and socio-economic conditions in Malawi, in order to set out the larger context within which developments in Mphunga must be understood.

This is followed by a discussion of the country’s institutional and policy framework for dealing with climate change. Chapters 6, 7 and 8 are where I present the core findings from my original research, organised in relation to my primary research questions. Chapter 6 reviews the history and social structure of Mphunga, and then focuses on local farmers’ livelihood strategies and the challenges they are facing in making these work for them. Chapter 7 looks at the external and local agencies that are present in Mphunga Group Village and the significance of social networks and social capital in smallholder farmers’ responses to their livelihood challenges, while Chapter 8 focuses on farmers’ understandings of climate change and how they are interfacing with the external experts that are active in their area and adapting to the impacts of climate change on their livelihoods. Finally, in Chapter 9 I draw together my conclusions with regard to my primary research questions and identify key issues for both further research and policy arising from my study.

Chapter 2: Literature Review - Climate Change

In this chapter I review the literature on climate change over four sections. In the first section I discuss the international policy framework that has been established to address climate change, followed, in section 2, by a brief examination of the debates on climate change, global warming and the science behind these phenomena. In section 3, I critically discuss the concept of climate change adaptation and also examine the arguments advanced by various researchers and development agencies for integrating climate change adaptation strategies with community development. This is because treating climate change adaptation as a stand-alone issue has been recognised as overly limiting. In a context of competing development needs and limited resources, climate change adaptation strategies present policymakers, donors, development agencies and community groups with an opportunity to develop integrated solutions that address climate change adaptation in conjunction with responses to pre-existing developmental challenges around environmental degradation, sustainable livelihoods and broader community development needs. In section 4, I examine the literature on how smallholder farmers are engaging specifically with the impacts of climate change. In conclusion, I highlight the need for a conceptual framework that demonstrates a clearer understanding of the impacts of climate change on smallholder subsistence farmers, which forms the main focus of my next chapter.

2.1 The international policy framework for climate change governance

As already indicated in my introductory discussion, the debates among climate scientists on how to interpret the data on global warming and its relationship to climate change are not the focus of my study. I take the evidence for global warming produced by climate scientists and its links to climate change as given. A study that looks, *inter alia*, at smallholder farmers' understanding of climate change and the role of experts within that would, however, be incomplete without discussing the international framework that shapes how these experts approach the regulation and governance of climate change. Their views inform government policy that in turn affects ordinary people, including smallholder farmers.

The UNFCCC, which provides the framework for climate change policymaking and governance internationally, exemplifies how participation in policy is influenced by international bodies to which scientists have strong professional ties. The UNFCCC is an international environmental treaty that was negotiated at the United Nations Conference on Environment and Development (UNCED), held in Rio de Janeiro in 1992 (informally known as the Earth Summit), with the aim of stabilising greenhouse gas concentrations in the atmosphere and thereby reducing anthropogenic (i.e. human-induced) impacts on global climate. The Treaty came into force in 1994 but without any legally "binding limits on

greenhouse gas emissions for individual countries or enforcement mechanisms” (UNFCCC, First Steps to a Safer Future). However, what it did provide was a framework for parties to negotiate specific international treaties that could, in turn, set binding limits on greenhouse gas emissions. For instance, the Kyoto Protocol, concluded in 1997, established binding obligations that required developed countries to decrease their greenhouse gas emissions, while “one of the first tasks set by the UNFCCC was the establishment of national inventories of greenhouse gas emissions and removals” by signatory nations (UNFCCC, First Steps to a Safer Future). Complemented by the Intergovernmental Panel on Climate Change (IPCC), the Treaty aims to build consensus among member states through regular meetings and discussions and parties to the Treaty have been meeting annually since 1995.

The IPCC is an intergovernmental body that is open to members of the World Meteorological Organization (WMO) and the United Nations (IPCC website). It was established in 1988 by the United Nations Environment Programme (UNEP) and the WMO, to provide the world with scientific evidence on climate change and its potential environmental and socio-economic impacts (IPCC website). While it does not conduct research or monitor climate-related data itself, numerous scientists from across the world contribute to its review work on a voluntary basis. These reviews are an integral aspect of the IPCC process, designed to guarantee an independent and complete assessment of the most current climate change information. Governments of member countries are involved in the review process, as well as the adoption of the IPCC work programme and reports. Because member countries acknowledge the authority of IPCC reports and their scientific content, the organisation endeavours to be non-prescriptive in its approach and to seek to be objective and neutral (Union of Concerned Scientists website).

The UNFCCC is the main instrument for “international action to address climate change”, with climate mitigation and climate adaptation the two main approaches identified for doing so (Stringer *et al*, 2009:146). As already noted and discussed further in section 2.3 below, adaptation refers to the ability of a system to adjust to climate change in order to reduce its vulnerability to the changes; it aims at enhancing a system’s resilience to the negative impacts of climate change (TERI, 2016). Mitigation, on the other hand, encompasses actions taken either to remove the greenhouse gases from the atmosphere or to reduce their amount and thereby to reduce the threat of climate change, according to The Energy Resources Institute (TERI, 2016). Adaptation strategies are recommended by policymakers as the most appropriate, urgent and affordable option for smallholder farmers to adopt (Grothmann and Patt, 2005; Lisa and Schipper, 2007); Christopolos *et al*, 2009). In 2005, Grothmann and Patt (2005:200) noted that adaptation “has become a cross-cutting theme among development agencies, donors and researchers” which had been institutionalised at national level through the NAPA requirements of the UNFCCC. Under the umbrella of the UNFCCC, countries have been required to develop NAPAs since 2001, in

order to develop policy and identify local coping strategies that can be built upon in identifying priority activities.

The development of NAPAs is now a requirement in all 49 of the world's "least developed countries", including Malawi (Stringer *et al*, 2009:146). The Government of Malawi ratified the UNFCCC in 1994 and then acceded to the Kyoto Protocol in 2001 (Malawi Environmental Affairs Department, 2010a). It developed its NAPA in 2006 and participates regularly in the UNFCCC's yearly negotiations as well as Conferences of the Parties sessions (Action Aid, 2012:14 and Stringer *et al*, 2010:148). According to Malawi's Environmental Affairs Department (2010a:17), the country's domestication of international instruments and adherence to the UNFCCC obligations are expected to contribute towards effective management of climate change. However, as discussed more fully in Chapter 5, Action Aid (2012:14) has noted that there are some glaring institutional, organisational, funding and operational challenges in achieving this. These challenges include the limited capacity of Malawian negotiators to engage with the complex international negotiation process and the lack of robust feedback mechanisms between the relevant national department and affected communities.

2.2 The history of climate change science

2.2.1 Debates on the evidence for and against climate change

In the past 30 years global warming and climate change have become the focus of international policy and regulation and issues of mounting public concern (UNDP, 2011; Brand and Brunnengraber, 2012; Bradford, 2014 and TERI 2016). In this time an international consensus has emerged around the scientific knowledge on climate change, effectively stamping the authority of science on this body of knowledge and providing legitimacy for political action. Consensus on the anthropogenic drivers of climate change built incrementally through the 1990s until the point was reached where today very few scientists feel uncomfortable attributing at least some degree of climate change to human activity, notably but not only the burning of fossil fuels as primary sources of energy, leading to increased levels of carbon dioxide in the atmosphere and global warming which is, in turn, driving an uneven but accelerating process of climate change around the globe. Currently, there is broad consensus among climate scientists and within international policy circles that the global warming that is resulting in climate change is also an outcome of natural causes (WeatherStreet.com, 2013; Makuvaro, 2014 and IPCC, 2007b and 2014b).

Global warming and climate change are sometimes used interchangeably, however they mean completely different things. According to Kennedy and Lindsey (2015:1) "global warming refers to the Earth's rising surface temperature while climate change includes warming and the 'side effects' of

warming – like glaciers, heavier rainstorms or more frequent droughts.” In other words global warming is one aspect of or a symptom of climate change resulting from increasing concentrations of greenhouse gases in the atmosphere due to human impacts. Climate change occurs over long periods of time and increases variations in temperature, precipitation and wind patterns.

Climate-related hazards are now increasingly frequent and more intense because of rising temperature and changing patterns of precipitation (Cannon and Muller-Mahn, 2010). “The intensity of climate extremes (floods, dry spells and droughts) may increase in both magnitude and frequency” at local and regional levels, according to Makuvaro (2014:29). Depending on how society responds to the challenge, the magnitude of climate change impacts could potentially be catastrophic on a global scale, with the impacts felt over the next millennium on multiple fronts. The unprecedented rate of change threatens to make smallholder farmers’ current coping strategies ineffective (Barrios *et al*, 2008).

According to climate scientists and major research institutions such as the Geological Society of America, the National Academies of Science (2005), the National Research Council (2006) and the IPCC (2007a, 2013 and 2014b), there is general acceptance that global climate has undergone changes throughout the earth’s history. However, the evidence shows that average global air temperatures have risen significantly over the past 60 years, while average global land surface temperatures have exceeded the previous climate period average since 1985 (IPCC 2013:15); the available evidence shows that by the end of the 20th century the world was experiencing an “unprecedented” rate of warming (Australian Academy of Science, 2015). Despite some debate on whether the rate of global warming was slowing down in the decade after 1997 (Kings, 2017) recent research by the National Oceanic and Atmospheric Administration (NOAA) in the United States of America, one of the most important climate observation groups globally, has argued that global warming did accelerate in the first 15 years of the 21st century (Karl, Arguez, Huang, Lawrimore, McMahon, Menne, Peterson, and Zhang, 2015: 1471). These findings were confirmed by a 2017 report (Hausfather, Cowtan, Clarke, Jacobs, Richardson, and Rohde, 2017) which blamed limitations in previous past datasets for the erroneous conclusion that warming had paused.

According to Mathiesen (2014), scientists first started to debate whether the world was warming in the 1980s. The author notes that consensus grew gradually, but many scientists remained undecided until the bold scientific statements made by James Hansen⁵ in 1988 and then by Jerry Mahlman in 1999. Hansen’s research on human-induced global warming was unequivocal in that what was described as

⁵ Dr James Hansen, formerly Director of the NASA Goddard Institute for Space Studies, is Adjunct Professor at Columbia University’s Earth Institute, where he directs a program in Climate Science, Awareness and Solutions. He is best known for his testimony on climate change in the 1980’s that helped raise awareness of global warming. Hansen is a member of the U.S. National Academy of Sciences (Kolbert in *The New Yorker*, 2009).

“the greenhouse effect” could be detected, and it was indeed changing the climate. Mathiesen (2014) points out that Jerry Mahlman coined the term “hockey stick” to describe a graph that showed global patterns of annual surface temperature based on average hemispheric temperatures. This development showed a fairly flat trend that was then followed by a steep increase that could be compared to the blade of a hockey stick (Monastersky, 2006). A version of this graph was reproduced in the 2001 Third Assessment Report of the IPCC, alongside four other reconstructions that supported the same conclusion (Folland, Karl, Christy, Clarke, Gruza, Jouzel, Mann, Oerlemans, Salinger, and Wang, 2001).

Subsequently, the graph became a focal point of dispute for those who were opposed to the gathering scientific consensus that the warming trend in the late-20th century was exceptional (Pearce, 2010). In what became known as the hockey stick controversy, the data and methods used in the reconstruction of the temperature record over a period of 1,000 years were disputed by some scientists (Monastersky, 2006). At the same time, sceptics also seized upon news about the cooling of the world’s oceans to support claims that global warming was a hoax (Lowe, 2006). Arguments over the reconstructions have also been taken up by lobby groups funded by the fossil fuel industry attempting to cast doubt on climate science (Pearce, 2010 and Connor, 2013). According to Mathiesen (2014) these developments signalled a galvanising moment for public opinion. Even though not all scientists were convinced, Hansen became an authority on climate change issues. The criticism and celebration that surrounded their work were influential in bringing climate change into the public consciousness.

While climate models generally agree about an increase in average temperatures, they disagree on how precipitation has been changing across the globe (Makuvaro, 2014). The lack of agreement among climate models in predicting precipitation is due to the high spatial and temporal variability that is associated with rainfall (Tadross, 2011). Climate scientists are of the view that if future greenhouse gas emissions can be reduced then climate change risk and impacts can be mitigated. However, climate change is a highly complex and continuous process that is non-linear and there is “currently insufficient knowledge to plot and anticipate the synergistic effects between natural and physical resource systems”, according to Simpson and Burpee (2014:3).

The evidence marshalled in the IPCC Report (2013) made a convincing case that the world is warming and humans are indeed driving climate change. However, the Report drew most of its research material from developed countries, owing to the minimal participation of climate scientists from the developing world. Scientists from wealthy countries are able to dominate the discussion because of the higher education levels and research capacity in these countries, as well as the funding support they receive from their home governments. This is unlike conditions in poorer countries. Unfortunately, these circumstances have the effect of politicising the IPCC reporting system, which tends to focus unduly

on the impact of climate change on the developed world. After the IPCC released its 2013 report climate change critics claimed a global hoax and pointed to differences between the 2007 and 2013 IPCC Reports. (See Frye, 2013).

Notwithstanding the broad consensus among climate change scientists with regards to human influence on global warming, some scientists point out that consensus is not itself a validation of the evidence for global warming and therefore the science is not yet settled (Frye, 2013). Professor Myles Allen, of Oxford University's Climate Research Network was critical of the IPCC reporting process, arguing that "its cumbersome production process misrepresents how science works." According to Frye (2013:1), Professor Allen went on to state in *The Inquisitr* that "the idea of producing a document of near-biblical infallibility is a misrepresentation of how science works, and we need to look very carefully at what the IPCC does in the future."

According to a number of social analysts (Demeritt, 2001:308; Lowe 2006; Russill and Nyssa, 2009; Brand and Brunnengraber, 2012), the marriage between politics and science and the resultant alarmist calls for urgency and the need for rapid change have provided climate sceptics with ammunition. Claims of fossil fuel as the leading cause of atmospheric greenhouse gases concentrations have embedded the discourse of climate change within the contested politics of energy consumption and production. In 2006, Lowe alleged collusion among powerful interests (for example, the media, science, politics and policy) "that have conveniently joined forces to present climate change as the most pressing global environmental problem of our time" (2006:5). Whilst he agreed that the global climate is changing, he was also critical of what he regarded as an overemphasis on dread and fear, along with alarmist predictions over potentially catastrophic scenarios that would lead to economic, social and environmental ruin.⁶

2.2.2 Climate change and human activity

This section briefly reviews the debate on how climate change is linked to human activities, as argued by scientific experts. What is important to note here is that climate change takes place at multiple levels and hence there can be no single level of analysis of such a complex system. The relative emphasis of scientific research remains at the global level, even though the issue must be analysed simultaneously across different geographical scales, from global to regional to local. As already described the causes of global warming continue to fuel fierce debate (Fitzpatrick, 2013 and Bradford, 2014); the issues are

⁶ This dissertation was finalised before the 2018 IPCC report was released. That Report highlighted the unprecedented, far-reaching and rapid changes that are needed in order "to limit global warming to 1.5°C" (UNEP, 2018:1) and warns that communities, cities, businesses and countries are now faced with "new types and higher levels of risk due to rising temperatures that are accelerating sea level rise and catalyse extreme weather events."

not simple and the relationship between human activity and warming continues to engage scientists. On the one hand there is evidence that global climate has varied naturally over different units of time, ranging from decades to thousands of years (Australian Academy of Science, 2015). On the other hand, the majority of climate scientists now agree that the evidence is compelling that the global warming trends that the planet is currently experiencing are not merely the result of naturally occurring cycles, but are primarily the result of human (anthropogenic) activity. While natural variations do occur over time, human activities are undoubtedly influencing climate by altering the levels of greenhouse gases (GHG) in the atmosphere (Fitzpatrick, 2013; Australian Academy of Science, 2015); the temperature changes that have been recorded in the oceans and atmosphere to date cannot be explained by natural changes alone (Hegerl, Zwiers, Braconnot, Gillett, Luo, Marengo Orsini, Nicholls, Penner and Stott, 2007). Agricultural practices and industrial activity are generally regarded as the main human activities releasing greenhouse gases into the atmosphere. According to the World Bank (2009a), changes in land use, including deforestation, contribute about 20 per cent of the carbon dioxide emitted in a year while 80 per cent is accounted for by the burning of carbon-based fossil fuels such as coal, oil and natural gas.

At the same time, climate scientists recognise that future effects of climate change are hard to predict accurately or in detail, especially at regional and local levels (National Academies of Science, 2005; National Research Council, 2006). Thus, the big questions in climate science now are about the extent of warming, and how serious global warming will be in the future. According to Fitzpatrick (2013), and Bradford (2014), the answers are not certain and are likely to remain so for some time. (On this, see also the Australian Academy of Science, 2015:5.) Earlier studies by Demeritt (2001) and Lowe (2006) highlighted that, given the level of uncertainty, the magnitude of future climate change could be greater or smaller than the best present-day estimates. The general trend, however, will remain in force for as long as people continue to emit substantial amounts of greenhouse gases, and potentially for long after.

2.3 Climate change adaptation

As already noted the 1992 UNFCCC is currently the primary tool for shaping international action to address climate change. Three important concepts inform the debate on response strategies, namely vulnerability, adaptation and mitigation. McCarthy, Canziani, Leary, Dokken and White (2007:148) define vulnerability as “the degree to which a system is susceptible to or unable to cope with the adverse effects of climate change, including climate variability and extremes.” Adaptation is the ability of a system to adjust to climate change in order to reduce its vulnerability and enhance its resilience to the “observed and anticipated impacts” of climate change, while at the level of global climate change policy mitigation refers to the strategies and actions taken reduce or eliminate the anthropogenic causes of climate change, such as removing or reducing greenhouse gases in the atmosphere (TERI, 2016).

According to the IPCC (2014a) “adaptation seeks to moderate harm or exploit beneficial opportunities ... It involves adjustments to reduce the vulnerability of communities, regions or activities to climatic change and variability.” Stringer *et al*, (2009:749) define adaptation even more succinctly as “a process of deliberate change in anticipation or response to multiple pressures and changes that affect people’s lives.”

From a global perspective, both adaptation and mitigation strategies are equally important for reducing the risk of climate change to human and natural systems (McCarthy *et al*, 2007). However, analysts generally agree that adaptation is more relevant than mitigation as a focus for developing countries (Grothmann and Patt, 2005:200), because these countries are insufficiently resourced to undertake effective mitigation strategies. Given low levels of industrialisation and consumption of resources, they are often also the least responsible for major drivers of climate change, such as carbon emissions. While mitigation strategies may produce benefits on a global scale, adaptation strategies are likely to result in local and regional benefits that are more immediately visible in people’s lives than those from mitigation. Furthermore, as McCarthy *et al*, (2007) argue, even if the best mitigation measures were adopted on a global scale, climate change would continue to play out over several decades, thus making adaptation strategies essential. For these reasons “the focus of policy makers has shifted from mitigation to adaptation in order to deal with the effects of climate change” (Christopolos *et al*, 2009:2).

The IPCC’s Fourth Assessment Report (2007a) recognises that adaptation is necessary to address the impacts of global warming, but also highlighted that in Africa the cost of adaptation to climate change was comparably high and the continent was poorly equipped to adapt. In 2009, the International Commission on Climate Change and Development called for a deeper understanding of adaptation as the starting point for managing the human dimensions of climate change.

2.4 Scale and different approaches to climate adaptation

Adaptation can occur at different scales, that is at the level of individuals and households or at the level of communities (noting the elasticity around this concept) or at larger national and institutional scales. In Mphunga Group Village, all three levels of adaptation are evident, with farmers engaging simultaneously with both formal and informal processes of adaptation and the different experts involved. (See chapter 8 for a fuller discussion).

At the individual or household level adaptation can involve a wide range of activities, including activities as diverse as the adoption of new technologies or relocating one’s residential or farming site or migrating (Adger *et al*, 2005). Knowledge can be an important part of adaptive capacity, although, as Dokken, Van Niekerk and Loubser (2018: 3) caution, “for the public to understand new knowledge

and integrate it into their framework of reality, science needs to be interpreted and communicated” so that a “shared account is created that leads to a shift in mentality.” At community level adaptation often involves collective action such as investing in river management or the pooling of resources, including knowledge; as these examples suggest, social capital plays an important role at this scale (Ostrom, 2005; Reid, Alam, Berger, Cannon, Huq and Milligan, 2009). Government programmes and policy interventions promote adaptation at institutional level. However, lack of infrastructure and weaknesses in implementing interventions are often a challenge at this level.

Of interest for this dissertation are the emerging lessons from various studies that show the important role of social capital in underpinning community-based adaptation (Adger, 2003; Pelling and High, 2004 and 2005; IIED 2009; Bryan, 2009). These authors point to the significance of social capital in shaping collective action and ask questions about the distribution and interactions of social groups and networks in affected areas. Pelling and High (2004) argue that the analysis of risk and adaptation from within a social capital framework helps to shift the focus from formal organisational capacity to informal social networks as critical resources in the flow of information and resources within communities.

According to Stringer *et al*, (2009: 749), “approaches to climate change adaptation may be either bottom-up, which is, grassroots community-led and implemented, or top-down when designed and managed by experts.” The authors note that “top-down adaptation often tends to be better-planned, well-resourced and managed, and far more reliant on human and financial capitals than social capital” (2009: 750). However, top-down adaptation also tends to be implemented in a highly bureaucratic and technocratic way, through international governance frameworks like NAPAs and national processes set out by global expert institutions. The approach is biased towards experts and does not fully take into account the views and experiences of non-experts whose livelihoods are most affected by global warming and climate change. It is, therefore, important, as Christopolos *et al*, (2007: 12) point out, for experts “to build on the strengths of local practices and address issues relating to grassroots communities if policy authorities and adaptation programs are to understand how specific factors influence local practices.”

There is growing evidence, since the IPCC’s Third Assessment Report (2001), about the capacity of poor and marginalised people to adapt to observed and anticipated climate change and thereby reduce their vulnerability to climate change (Reid *et al*, 2009; IIED, 2009; Shaw, Mallick and Islam, 2013). There is also a growing awareness that it is important for climate scientists to explain the science, including the uncertainties and implications, to the lay public in simpler terms than can be found in most IPCC reports (Grothmann and Patt, 2005:201; Christopolos *et al*, 2009; Wolff, 2012). Some international and national NGOs dealing with climate change adaptation (for example, CARE

International, IIED, Oxfam and Action Aid) aim to empower local communities by employing their traditional knowledge and local concepts (IIED, 2009; Wolff, 2012:14). These approaches acknowledge the importance of marginalised communities playing key roles in planning, implementing, monitoring and evaluating possible solutions to the climate-induced challenges they face. However, the application of community-based approaches in climate change adaptation is fairly new and academic research that investigates the potential for such approaches is also fairly recent (Shaw *et al*, 2013).

Many analysts thus argue that these two approaches to adaptation – top-down or bottom-up – should ideally complement each other (Dokken, Van Niekerk and Loubser, 2018:3) while in practice approaches to adaptation are not limited to either top-down or bottom-up approaches, but can also be what Gertze (2015:112) refers to as “inside-out”, “sideways” or “do-nothing.” Because of extreme poverty or stress some households may simply not know what to do to consciously adapt to the changes around them and may therefore not do anything but wait for the crisis to play itself out and in the process determine their fate or opportunity. Community-based agencies such as informal clubs, farmer associations or local faith groups may also initiate peer-to-peer support or adaptation processes, which Gertze (2015) and Christopolos *et al*, (2009) refer as a “sideways” approach, because it comes from neither the top nor below. When communities make a paradigm shift from perceiving themselves as powerless victims of climate change to becoming their own saviours and experts in adaptation, then, according to Gertze (2015), they effectively engage an inside-out approach.

Adaptation approaches can thus be actor-oriented, that is focused on social actors’ agency, or “resilience-based” when focused on the adaptive capacity within “socio-ecological systems” (Stringer *et al*, 2009:749). Finally, “adaptation can also be negative or positive, reactive versus anticipated and planned or autonomous” (Berkhout, 2012:93). Conventionally, grassroots-level adaptation is considered reactive and policy-driven adaptation better planned. For Berkhout (2012), most adaptation processes are inevitably reactive because social actors do not usually have complete knowledge to predict the timing and precise changes in climate in their locality and hence act pro-actively. Berkhout (2012) also questions the extent to which social actors act autonomously, given their embeddedness in social, cultural and institutional contexts and the fact that climate vulnerability is determined by factors outside their control. In this regard Adger, Arnell and Tompkins (2005) point out that while adaptation may reduce risk in the short term, it can cause more exposure to risk over the long-term, if short-term strategies such as borrowing or using savings are relied upon. Moreover, “what may be effective adaptation for one community may undermine the ability of others to adapt” (Stringer *et al*, 2009: 749).

From a bottom-up perspective, local-level adaptation should be led by local community development experts, using what have been termed Local Adaptation Plans of Action (LAPA) as their guiding frameworks rather than the UNFCCC’s NAPAs. According to Wolff (2012) LAPAs are more likely to

have an inclusive approach that strengthens the capacity and involvement of local actors and institutions, unlike NAPAs which operate in an “ivory tower” that does not include civil society and local communities. They cite examples of where the LAPA approach has been successfully applied by the development agency Misereor and its partners in Bangladesh and India where the NAPAs approach was excluding grassroots communities (Wolff, 2012:8). In similar vein Malawi’s NAPA has been criticised by civil society organisations for various weaknesses and its preoccupation with agriculture at the expense of broader and wider social perspectives (Oxfam International, 2009).

2.5 Climate change adaptation and human development

Within the international development policy sector, adaptation has been identified as a potentially effective strategy to address both climate change impacts and community development challenges concurrently. Lisa and Schipper (2007:9-10) make the important point that “adaptation should not be seen as an alternative for sustainable development” – rather, adaptation practices should be premised on “the integration of climate change responses into the human development agenda” and adaptive capacity and wider human development processes should converge in addressing both the underlying factors that cause livelihood vulnerability and harnessing human agency to address the challenges. In 2012, Berkhout (2012:102) argued that there are “on-going efforts to mainstream climate change vulnerability and adaptation into government policies and development planning.”

Morton (2007) and Dovers (2010) have both noted how non-climate related stresses reduce resilience and adaptive capacity within communities, as resources get overstretched across competing needs and vulnerability to climate change worsens. High incidence of diseases such as HIV/AIDS, along with political upheavals, deep levels of poverty, unfavourable trends in economic globalisation and unequal access to resources are some of the non-climate stresses at issue (Morton, 2009). Major international agencies including IISD, IUCN and SEI (2003:16-17) acknowledge that climate adaptation strategies should not be separated off from mainstream development policies but how best to achieve this is not always clear. More than 10 years ago, Pelling and High (2004:1) noted that despite growing interest in the mainstreaming of climate change adaptation into development planning, “existing frameworks have a limited scope for explaining the pressures shaping the adaptive choices of those most affected by climate change.” A few years later the situation had not improved much, as confirmed by the UNDP (2011:3) which noted that whilst climate change adaptation was indeed an area of growing interest among development agencies, “efforts to mainstream adaptation into national development planning are still at an early stage in many countries.”

In this context Wolff (2012:8) advocated a shift in focus from national interventions in the form of NAPAs, to community-based local adaptation programmes of action (LAPAs) that are not exclusively reliant on expert advice and scientific knowledge. An ideal adaptation approach would move away from a focus on the victims of climate victims to an endorsement of the principles of sustainable development, which would recognise the differentiated nature of adaptive capacity across different households and geographical locations, rather than promoting a one-size-fits-all solution (Wolff, 2012; see also Christopolos *et al*, 2009; Lisa and Schipper, 2007). In this regard, the United Nations' (UN) Sustainable Development Goals, adopted in 2015, could become an important mechanism for measuring progress towards outcomes that improve communities' adaptive capacity and resilience, provided climate change is recognised as a core objective in such policies.⁷

Globally, the UNDP-UNEP's Poverty-Environment Initiative is the lead technical and financing agency that is supporting developing countries to mainstream poverty-environment linkages into national development planning processes (UNDP-UNEP, 2011). Increasingly, international development policy and funders are requiring development agencies to manage the risks and vulnerabilities brought about by climate change as part of their developmental work. Various initiatives and financing mechanisms are being rolled out that are aimed at assisting countries with adaptation (and mitigation in some instances). For example, in 2012 the International Fund for Agricultural Development (IFAD) launched a special purpose fund (the Adaptation for Smallholder Agriculture Programme) that channels finance to smallholder farmers to access the information, tools and technologies they need to build their resilience against climate change. The programme is working in more than 30 developing countries, using climate finance to make rural development programmes more climate-resilient (IFAD, 2013).

At the same time, Godfrey-Wood and Otto (2016) argue that it is not enough to realise that climate change poses a threat to the poor and that improved adaptation techniques are required. Rather, profound questions need to be asked about the way existing development paradigms are perpetuating vulnerability to climate-related risks, and how appropriate they are for addressing the challenges. Such arguments feature strongly in the growing literature on transformation and adaptation (Ribot, 2011 and 2014; Pelling, O'Brien and Matyas, 2015) that is calling for radical change in existing political and economic structures for successful adaptation to climate change to happen. As Ribot (2011: 2014) has argued, by focusing on unhelpful proximate causes and asking who is vulnerable, rather than why they are vulnerable, the emphasis on climate change adaptation risks taking much needed attention away from the structural causes of vulnerability and proffering accounts of adaptation that are historically

⁷ The Sustainable Development Goals are a set of aspirational goals that were adopted by 193 countries at the UN General Assembly on 20 September 2015; they outlined 17 goals (in which combatting climate change features as goal 13) and 169 associated targets.

and politically neutral (Ribot, 2014). Accordingly, Ribot (2014) calls for a redirection of energies towards emancipatory approaches that address the root causes of vulnerability, focusing on the poor and climate-vulnerable and their organisations, including rural smallholders and urban slum-dwellers.

The increased prominence of ideas around transformation in adaptation literature is reflected in the 2014 IPCC report (2014a), that makes a distinction between incremental and transformational adaptation. However, there is as yet little clarity among analysts on what transformational adaptation involves in practice in communities like Mphunga Group Village.

2.6 Responses of smallholder farmers to climate change

A growing body of literature confirms that climate change-related hazards are hitting smallholder farmers particularly hard. A number of largely quantitative analyses, drawing on data from regional studies, have been undertaken at various geographical scales to develop projections of future impacts through modelling studies (Adewojun, 2006; Vogel, 2006). One example is the work of the International Livestock Research Institute (ILRI), which has produced maps of vulnerability to climate change for sub-Saharan Africa. In a 2007 study Morton (2007) noted how harvest losses and damages from extreme weather events were increasing and the patterns of droughts, floods and tropical storms becoming more unpredictable. In order to reduce the impacts of climate change on agricultural productivity and community well-being, appropriate adaptation strategies needed to be put in place. For dry land subsistence farmers whose livelihoods are closely tied to farming and natural resource use, effective adaptation should build resilience and decrease vulnerability to multiple threats (Stringer *et al*, 2009:749). However, in reducing vulnerability and increasing their resilience and adaptive capacity, smallholder farmers face a complex set of challenges. They need to adapt their livelihood strategies not only to deal with current conditions, but also to secure themselves against future uncertainties in local weather conditions (Morton, 2007: 19683).

Grothmann and Patt (2005: 202) argue that risk perception is a significant determinant of adaptive capacity. They are of the view that the science of decision-making at individual and community levels is far more complex than studies that focus simply on financial, technical and institutional constraints as the primary determinants of adaptation allow. Berkhout (2012: 100) concurs with the view that a variety of factors influence how climate-related risks and opportunities are perceived, evaluated and new ways of responding to them devised.

The variety of adaptation techniques and strategies that smallholder farmers use have been categorised in different ways. Thus, following a review they undertook in Ghana, Pinto, Demirag, Haruna, Koo and

Asomoah (2012) classified adaptation techniques into four main groups: i) farming practices and technology that include crop diversification or crop specialisation and the utilisation of drought-resistant varieties, as well as irrigation and soil conservation and erosion control techniques; ii) information strategies aimed at dealing with risk and uncertainty such as mobilising local knowledge and raising awareness and access to information, for instance through weather and climate information services and early warning systems; iii) off-farm strategies such as migration or programmes aimed at the empowerment of women, and iv) national development policies targeting issues such as access to and the governance of water, agricultural intensification and institutional reforms. Focusing more narrowly on economic diversification strategies Cook *et al* (2013) also identified four categories of adaptation strategies in recent climate change studies: i) switching crop varieties, ii) crop diversification, iii) diversification across crop and livestock production and iv) diversification across farm and non-farm activities. A 2006 FAO study (2006) divided adaptation strategies into government supported strategies, technology-driven strategies, local (traditional) strategies, and alternative or innovative adaptation strategies. And a later FAO (2010) study distinguished among cutting-back strategies, income-coping strategies and agricultural-coping strategies such as changing the timing of planting, crop and livestock diversification, livelihood diversification and soil and water conservation strategies.

While these different categorisations of adaptation strategies are conceptually useful, in practice they can be challenging to distinguish and apply. For example, the distinction between local (indigenous or traditional) or internal versus external technologies is not clear-cut in many cases, especially given the inconsistencies in records, traditions and stories of how the strategies came about. For these reasons I chose to group the range of adaptation strategies that I encountered among Mphunga into just two broad camps: introduced (external) and local (indigenous or traditional) adaptation strategies, while recognising that in practice the strategies blur and feed into each other. However, in practice, as my study shows, the boundaries between these two camps are often blurred, in what Long (1999) has described as the interface between external experts and local people.

At the same time, what is important to recognise is that the farming systems of smallholders located in marginal environments and areas prone to natural disasters are characterised by livelihood strategies that have already evolved to reduce overall vulnerability to weather shocks and other negative impacts. According to Morton (2007:19681), “many defining features of dryland livelihoods are effectively adaptive strategies to climate variability and change.” The distinction between coping and adaptation is thus often blurred in these contexts because what could start off as a coping strategy for exceptional years can become a more permanent adaptation strategy for some households or for the entire community in following years. I observed this trend among the farmers in my study site, where repeated coping strategies to climate shocks effectively became adaptive strategies over time. Examples of such strategies included re-allocating farm labour and diversifying household livelihood strategies.

Christopolos *et al* (2009:14) have argued that smallholder communities are well-placed to anticipate climate risks, and withstand its most negative effects, given their close interaction with their local environment. They are informed by a deep understanding of their livelihood context and local social factors in their assessment of appropriate actions to take and the opportunities and limitations associated with particular actions. Makuvaro's (2014) study on Zimbabwean smallholder farmers, Joshua *et al*'s (2016) study on Malawian smallholder farmers and Mugambi's (2017) study on marginalised and resource-poor households' coping strategies in Kenya also highlight the centrality of grassroots communities' understandings of their environment in shaping their responses to climate variability and change. Other studies in similar vein include those by Maddison (2006), Gbetibouo (2009); Moyo, Mvumi, Kunzekweguta, Mazvimavi, Craufurd and Dorward (2012) and Tshuma and Mathuthu (2014).

Other studies have shown how formal and informal institutions governing markets are also being affected by climate change, with commodity markets in a constant state of flux as climate change affects farmers' produce and the terms of trade for labour and services. In the face of these complex forces that are beyond their control, poor farmers are relying more on their reserves of social capital in the form of local reciprocal relationships within their families, communities and local organisations such as farmers' clubs, when they are caught up in extreme situations like disasters (Christopolos *et al*, 2009:11-12). However, the nature of these social structures and relations are also changing due to on-going pressure for help, which can result in the erosion of reciprocal capacity. In these contexts, alternative forms of social capital may emerge through new networks involving relationships with state and non-state actors, as I discuss in Chapters 7 and 8.

Morton (2007:19682) observes that despite the identification of the effects of climate change on rural areas in developing countries as a matter of concern, there has been relatively little discussion that engages with the specificities of smallholder farming systems and calls for frameworks that recognise the "complexity and location-specificity of crop and livestock production systems and also incorporate non-climate stressors on rural livelihoods and their contribution to vulnerability into the analysis." In the next chapter I explore the sustainable livelihoods framework and the actor-oriented approach as elements of a conceptual framework that is sensitive to these concerns.

2.7 Conclusion

To date the UNFCCC remains the key instrument for international action to address climate change, through strategies aimed at both mitigation and adaptation. Adaptation to climate change has been institutionalised through UNFCCC instruments such as NAPAs, and the principle of adaptation

enshrined in multi-lateral agreements in accordance with Agenda 21. However, in the long-term adaptation strategies focussing simply on climate change are ineffective on their own. Non-climate stressors are also increasing vulnerability to climate change by weakening the adaptive capacity and resilience of communities due to competing needs that are overstressing resource deployment. Whilst an adaptation approach focuses on cushioning people against the worst impacts of climate change, a vulnerability reduction approach addresses broader, more fundamental and systemic issues that are undermining people's capacity to address the impacts of climate change. This acknowledges that the people bearing the brunt of climate change impacts on their everyday lives are also actors in their environments.

Despite its limitations, the current concern with climate change adaptation does present an opportunity to rethink the twin challenges of environmental degradation and community development. The growing popularity of adaptation as a policy objective is evidence of a desire to identify a mechanism that bridges climate change, environmental degradation and human development work. However, a way of addressing competing priorities and integrating parallel processes around risk and development is needed for effective adaptation strategies to be developed. This may require that policy communities look beyond the UNFCCC to better understand how to facilitate adaptation more holistically.

In the next chapter, I explore a body of theoretical literature which shifts the focus beyond a narrow concern with the impacts of climate variability and change on smallholder subsistence farmers and draws attention to the importance of understanding smallholders as actors in their own right, embedded in complex economic, social and political relationships which shape their livelihood strategies and the way they understand and engage with these impacts.

Chapter 3: Conceptual Framework

The conceptual framework for my study is organised around three main axes: i) an actor-oriented approach, ii) the sustainable rural livelihoods framework and iii) the concept of social capital. Although here my discussion of each of these axes is presented sequentially, for ease of structuring the discussion, it needs to be stressed at the outset that the axes are not conceptualised as distinct and separate elements. Rather, the three axes intersect and interact with each other to form a complex matrix.

In section 1 of this chapter I provide an overview of the actor-oriented approach, which provides the philosophical underpinnings for my study. In this section, I also examine notions of knowledge and power, and how they shape agency, and engage with critiques of the actor-oriented approach before discussing the methodological implications of using the approach. In section 2 I look at the sustainable livelihoods framework as a tool for analysing the particular context in which farmers act, including their livelihood resources, strategies, and outcomes and the institutional processes in which these activities are embedded. This section includes a review of the critiques of the sustainable livelihoods approach. In section 3, I examine in more detail the notion of social capital, a form of capital that is central to the sustainable livelihoods framework and has been widely deployed in policy discussions around climate change adaptation although also subject to critique.

3.1 An actor-oriented approach

Smallholder farmers' understandings of climate change and responses to its impact are shaped, in the first instance, by their own experiences and livelihood struggles. According to Nyamu-Musembi (2009:41), understanding the perspectives of those directly affected by climate change “transforms the normative parameters set by scientific experts” on climate change; it questions the established conceptual categories of climate change and “expands the range of claims that are validated as science.” In this regard, an actor-oriented approach is regarded as central to my study because it requires the researcher to develop an understanding of climate change and associated responses (whether coping, adaptation or mitigation) from the perspective of the smallholder farmers themselves.

My understanding of the actor-oriented approach that I deploy in this study is based on the work of Norman Long (1999; 2001) which has been concerned with community development broadly rather than being positioned within the climate-change discourse as such. Long (1999) not only calls for researchers and policymakers to pay attention to context, but, as noted by Nyamu-Musembi (2009), he also emphasises the importance of their reflecting on the consequences of their work for less powerful groups and individuals in society. He introduced the actor-oriented approach into development

sociology in order to break the “impasse” that he saw in the field of development studies, because of its domination by what he regarded as various forms of determinism, linear thinking and institutional hegemony. In his view, a major weakness of existing theories of development, found in both modernisation theory and neo-Marxism, was that they were not centred on people as the agents and not only the beneficiaries of development programmes, resulting in an impasse due to “their inability to reveal the internal mechanisms of society” (Long, 2001: 59). He argued for a way out of the impasse by paying more attention to the people involved in the development process, resulting in the adoption of what he described as the actor-oriented perspective.

According to Long and Villarreal (1994), the key task of the actor-oriented approach is the identification and characterisation of different actors’ perspectives, practices and strategies as well as the particular contexts in which they engage with other actors. All social actors who share common issues must be identified alongside the social practices, dialogues and interactions that characterise their “life-worlds.” Long (2001: 241) defines life-worlds as “lived-in and largely taken-for-granted social worlds.... Life-worlds embrace actions, interactions and meanings, and are identified with specific socio-geographical spaces and life histories.” He places what he terms “interface analysis” at the centre of the actor-oriented approach and outlines five core elements of this approach for “understanding organising practices, knowledge encounters and the relations between service-providers [experts in the context of my study] and so-called beneficiaries” (Long, 1999: 1). The five elements that Long (1999) identifies are: i) interface as an organised entity of interlocking relationships and intentionalities; ii) interface as a site for conflict, incompatibility and negotiation; iii) interface and the clash of cultural paradigms; iv) interface as composed of multiple discourses; and v) interface and planned intervention.

The first element, interface as an organised entity of interlocking relationships and intentionalities, focuses on the relationships between different parties whose on-going interactions result in the emergence of boundaries that shape such interactions. In the context of my study, smallholder farmers demonstrating organising capacity establish interfaces between themselves and experts such as researchers and agricultural extension officers. Such interfaces result in particular engagements that are shaped by unwritten rules and sanctions and what Long (1999: 1) refers to as “a hierarchy of ties based upon patron-client and friendship relations.” Ties and relationships of this nature are not unusual because even informal networks often evolve standardised modes of interaction with outsiders. Negotiations aimed at influencing “the rules of engagement” between the different parties are also common according to Long (1999).

The second interface that Long identifies concerns interactions involving “conflict, incompatibility and negotiation.” Despite the common interest that experts and farmers may appear to share in improving farmers’ livelihoods and addressing the adverse impacts of climate change, “interface interactions” can

also generate conflict as a result of competing interests and unequal power relations between the different parties, for example between farmers and government officials. According to Long (1999: 2) this type of interface may require the selection of brokers from within the conflicting groups to negotiate the impasse between them. In the case of Mphunga Group Village, both civic and traditional leaders (including the village development committee chair, NGO representatives, village heads and clan heads respectively) sometimes find themselves playing this brokering role between the “different social domains” of fellow farmers and outsiders or experts, by virtue of their positions and leadership roles. Long (1999) warns against making assumptions that brokers necessarily act in the best interests of their constituencies and cautions that the ties between brokers and their constituencies (whose members are often heterogeneous) should not be taken as given, but need to be empirically established.

The third interface identified by Long (1999) focuses on the production of differences as a result of “cultural paradigms” which are reflected in different groups adopting very different worldviews or ideological positions from each other. Common examples concern the different views held by experts and farmers about agricultural development processes, which rarely coincide, or the differences among extension workers from different government departments (for example agronomists, irrigation engineers and veterinarians). They often do not agree on the priority issues for agricultural development due to “personal idiosyncrasies” and differences in socialisation and professionalisation that may result in miscommunication according to Chambers (1997).

With regard to Long’s fourth interface, that of multiple discourses, Chambers (1997:78) refers to dominant discourses as the “vertical transfer of reality” that experts accept as a result of their training and socialisation. Interpersonal dominance and superiority are established and reinforced in different combinations in the encounters between experts and non-experts. According to Chambers (1997:79) dominance is often expressed in manners of speech or through the use of certain words associated with power and authority which are chosen to impress but may also mystify the recipient of the information that is being imparted - for instance, through the use of English at community meetings, or referring to trees with their Latin scientific names instead of their local (or indigenous) names. In this regard an actor-oriented approach is not only useful for examining power relationships between local and external actors, but also for looking critically at the complex relationships and interests among local actors, for instance the knowledge and power issues evident in the interplay that I witnessed between young and elderly farmers in Mphunga Group Village. Knowledge, as “a cognitive and social construction is shaped by the experiences, encounters and discontinuities that emerge at the points of intersection between different actors’ life-worlds”, and is often “entangled with power relations and the distribution of resources” (Long, 1999:3). Intervention situations like Mphunga Group Village are often characterised by the “confrontation of expert versus lay forms of knowledge, beliefs and values” (in

this case about the understanding of climate change) and “struggles over their legitimation” and communication (Long, 1999:3).

Long (1999) goes on to state that new information and cultural frames are incorporated in “existing knowledge frames” that are re-shaped through the communicative process. To this extent, knowledge is effectively “a product of interaction, dialogue, reflexivity, and contests of meaning, and involves aspects of control, authority and power” (Long, 1999: 3). The interplay of experts’ scientific knowledge about climate change and farmers’ local knowledge, beliefs and understanding of climate change involves an implicit contestation of knowledge systems and values that are characterised by forms of authority and power relations.

It is multi-layered (there always exists a multiplicity of possible frames of meaning) and fragmentary and diffuse, rather than unitary and systematised. Not only is it unlikely therefore that different parties (such as farmers, extensionists and researchers) will share the same priorities and parameters of knowledge, but... ‘epistemic’ communities (that is, those that share roughly the same sources and modes of knowledge) ... [will be] differentiated internally in terms of knowledge repertoires and application (Long, 1999:30).

According to Long (1999:4) interface analysis is also useful for looking at what he describes as “planned interventions” by experts such as researchers, NGOs and government officials, when they “enter the life-worlds” of local people such as smallholder farmers (Long’s fifth element of interface analysis). A planned intervention is best examined as an “on-going, socially constructed and negotiated process” rather than the execution of an already determined plan of action. From this perspective, “planned interventions can be a transformational process” that is re-shaped both by its own internal organisational context, as well as by the dynamics and conditions it encounters or creates (Long, 1999:5).

Interface analysis thus involves the exploration of multiple realities of intervention projects (Long, 1999). It looks at the struggles which emanate from the different perceptions and expectations held by the different stakeholders in the intervention project, such as the implementers, the beneficiaries and the bystanders. In the case of climate change interventions, the response strategies of smallholder farmers who struggle to define and defend their own knowledge systems and cultural boundaries in relation to the climate change debate become central to the analysis. Their interactions with experts cannot be adequately understood through the use of generalised concepts like “climate change adaptation” alone. Rather, they should be analysed as part of on-going negotiation around livelihoods and struggles over meaning. Interface analysis also pays attention to “the dynamics of accommodation that it may reveal”, which make it possible for different views to influence each other (Long, 1999:5).

Matsaert, Ahmed, Islam and Hussan (2005) argue that the actor-oriented approach allows one to identify key actors in a given system, map the linkages and information flows between them, and then look at how these inhibit or support the system's development processes. According to Nyamu-Musembi (2009: 41), "the actor-oriented approach explicitly acknowledges the reality of power differences and hierarchical relationships in society." Collectively and individually, the smallholder farmers of Mphunga Group Village may appear powerless in the face of worsening poverty and livelihood challenges that are associated with the impacts of climate change. However, they also have moments of power and influence, for instance when local women in my study site organised themselves into informal clubs as well as work parties to assist each other in times of need.

An actor-oriented approach is interested in mapping these dynamics and arriving at a more grounded and nuanced understanding of power relations at the local level. It focuses attention on the social dynamics of everyday life and the ways in which different social constituencies are organised. In this way it encourages the researcher to go beyond simplistic notions of 'the community' as homogenous entities with uniformly common problems, and pay attention to significant differences among community members in terms of age, gender, education and asset ownership and how these affect individual responses to shared phenomena, such as adverse weather events. In addition to looking at the differences among smallholder farmers, the actor-oriented approach is also useful for understanding the different interests and knowledge systems of experts and farmers.

3.2 The sustainable livelihoods framework

Alongside the actor-oriented approach, I have adopted the sustainable livelihoods framework to identify the assets and institutional processes that inform farmers' livelihood strategies and outcomes and thereby understand key features of the social world of farmers. The logic of the sustainable livelihoods framework is that it not only identifies the important assets in a household's livelihood strategies, but considers "their trends over time and space, as well as the impacts of shocks and stresses (environmental, economic and social) upon these assets" (Morse *et al.*, 2009:3). The livelihoods approach proved particularly important for integrating insights and interventions across sectors and disciplines. The approach is concerned with social actors' ability to improve their livelihood assets and capabilities when faced by shocks and stresses, an approach which I consider highly relevant for an assessment of Mphunga Group Village farmers' strategies in the context of climate change. Although the framework has been subjected to various criticisms since it was first developed in the 1990s (see review in section 3.2.3 below), including by some of its originators (Scoones, 2015), in my view it remains a very useful tool. Scoones' seminal 1998 working paper on this subject has been cited more than 2,900 times and new studies continue to be published on the subject, according to Batterbury (2016).

The framework became the dominant approach to development interventions among a number of international development agencies in the 1990s, including DfID, CARE International, IFAD, Oxfam and the UNDP (Morse, McNamara and Acholo, 2009; Scoones, 2009, Morse and McNamara, 2013 and Batterbury, 2016). Many of the agencies absorbed and reworked the framework in relation to their own local projects, thus bringing fresh ideas and field experiences to the understanding of the framework (Scoones, 2009:179). A number of them have continued to draw on the framework in their interventions, leading some commentators to conclude that although the sustainable livelihoods approach to understanding development may have been knocked and criticised it never really died (Morse and McNamara, 2013 and Batterbury, 2016).

Long referred to livelihood strategies when he first developed his distinctive actor-oriented approach in the 1980s. The formal connection of the three dimensions of sustainability, rural development and livelihoods to frame a specific approach was first made in 1986 (Scoones, 2009). After Chambers and Conway produced a paper on the same subject in 1992, the concept of sustainable livelihoods began to gain currency, effectively marking the starting point of the sustainable livelihoods approach in the 1990s (Scoones 1998 and 2009). The livelihoods framework dominated much rural development practice and thinking until about 2009 when mounting challenges to the approach called for a rethink to engage with the new challenges that had emerged since the 1990s (Scoones, 2009:191).

The sustainable livelihoods approach provides a practical framework for evidence-based intervention, especially in a context of rapid and uncertain changes, such as areas affected by climate change. According to Batterbury (2016), while the development agencies mentioned above may differ in some aspects on how they apply the framework, their approaches generally share common characteristics. Constructed as a framework for analysis rather than a clear-cut “how to” recipe (Carney, 2002:48), the approach was described by Small (2007:29) as representing “a paradigm shift in international development.” In the following section I briefly review how leading authors have defined first sustainability and then livelihoods and draw out some common features in order to operationalise my understanding of sustainable livelihoods within the context of my study, and then discuss the analytical framework itself and address some limitations

3.2.1 Defining livelihoods and sustainability

A range of definitions of sustainable livelihoods is available in the development studies literature from prominent scholars and practitioners such as UNDP (1990); Chambers and Conway (1992); Carswell (1997); Scoones (1998; 2009); Farrington, Carney, Ashley and Turton (1999); Morse *et al.* (2009; 2013); Long (2001); Carney (2002) and Small (2007), among others. According to Carney (2002:9),

the proliferation of definitions means there are some tensions embedded in the concept, with no single formula capable of measuring sustainable livelihoods fully, in all contexts. The definition of sustainability is itself multi-dimensional, encompassing biophysical, economic and social dimensions, even though, in much of the literature the biophysical aspects, that is those relating to the environment, tend to be emphasised at the expense of the human dimension. However, despite these challenges, the idea of sustainable livelihoods can be seen as a major leap forward in thinking about development, because of the way it brings different aspects together within a single framework, in particular issues around poverty reduction, sustainable use of natural resources, empowerment, including gender empowerment, and good governance (Morse *et al.*, 2009: 12). It has been given a further boost by the UN's adoption of its global Sustainable Development Goals (2015).

Although he used the term sustainability, Scoones (1998: 14) argued in the late 1990s that its definition remained unclear and inconsistent. He suggested that the main problem was that the notion of sustainability was stuck in resource politics, so that what it actually means in practice would differ for people with access to different resource portfolios. Writing a decade later, Morse *et al.* (2009: 14-16) argued that sustainability is a difficult concept to define because it operates across a number of different disciplines. In this respect it has similarities with the concept of sustainable development from which it is drawn, which has a long history that dates from the 1972 United Nations Human and Environment Conference, evolving through the 1992 UNCED (or Agenda 21), and now underpinning the UN's understanding of appropriate forms of development.

Although sustainable development is defined in different ways, the most frequently cited definition is from the UN's 1987 report on "Our Common Future", also known as the Brundtland Report,⁸ which described sustainable development in future-oriented terms as "development that meets the needs of the present without compromising the ability of future generations to meet their own needs." According to the International Institute for Sustainable Development (IISD) it thus "contains within it two key concepts: the concept of needs, in particular the essential needs of the world's poor, to which overriding priority should be given; and the idea of limitations imposed by the state of technology and social organization on the environment's ability to meet present and future needs" (IISD, Sustainable Development). Over the ensuing decades, the concept of sustainable development was rapidly mainstreamed in development work, effectively shaping the international development agenda and attitudes towards the interaction of social, economic and environmental development.

10 The Brundtland Commission, named after Norway's former Prime Minister who chaired it, found a receptive audience for its proposals at the UN Conference on Environment and Development in Rio de Janeiro in 1992. The documents approved at the Conference, notably Agenda 21, included ambitious commitments to ensure sustainable development in many areas and on all levels of society (United Nations Economic Commission for Europe).

With regard to the concept of livelihoods, Chambers and Conway (1992:7) defined a livelihood as “comprising the capabilities, asset stores, resources, claims and access and activities required for a means of living.” Building on Chambers and Conway’s definition, Hebinck and Bourdillon (2001:1) have described livelihoods as an umbrella term, applicable in both research and development planning, which is concerned with “resources and the ways in which people manage them in co-operation and competition with others.” The concept thus links, in a holistic way, the variety of ways in which people make a living, within the contexts in which they live, with context seen as critical for understanding the actual ways in which livelihoods are mobilised.

Putting the two concepts of livelihoods and sustainability together, livelihoods are regarded as sustainable only when they enable people to cope with stress, recover from shocks and sustain or improve their capabilities and assets without compromising the natural resources supporting them (Chambers and Conway, 1992; UNDP, 1990:10). In coupling sustainable livelihoods to the notion of capabilities Chambers and Conway (1992), along with many other analysts of development, are indebted to the ideas of the economist Amartya Sen, who defined capabilities as “substantive freedoms to choose a life one values”, which entails “the conversion of real opportunities available to an individual in order to pursue their objectives” (Sen, 1999:74-75). He thus links livelihoods to qualitative judgements about freedom and values, further observing that his definition takes into account “relevant personal characteristics that determine the conversion of opportunities or goods into the person’s ability in order to achieve their ends.”

Much of the literature on the sustainable livelihoods framework has focused on rural poverty, which is rooted in the concern within development studies from the 1970s to address both the high incidence of rural poverty globally and the negative impact of rural livelihoods on the environment. According to Morse *et al*, (2009:12), this focus on poverty in rural areas was what led to the adoption of the sustainable rural livelihoods approach by many international development agencies, including DfID, UNDP, Oxfam and CARE. According to DfID (1999), the attractiveness of the framework lay in its applicability to different contexts, as well as its emphasis on consultative and participatory processes which promoted the cross-fertilisation of ideas among various stakeholders. Sustainable livelihoods drove DfID’s development policy agenda from 1997 (Scoones, 2009: 176; 2015: 39) and was influential in revitalising the British aid programme in mainly rural environments in Anglophone countries in Africa and South Asia (Morse and McNamara, 2013). Batterbury (2016: 493) stated that DfID “went on to employ Livelihood Advisors, reworked the sustainable livelihoods framework as Sustainable Livelihoods Approaches, then commissioned millions of pounds of research and publications”

I find the definition of sustainable livelihoods developed by Chambers and Conway in 1992 appropriate for my study for a number of reasons. Firstly, it is relevant because of its focus on rural poverty and its understanding of how capabilities such as knowledge and skills as well as livelihood assets can be used to cushion against stresses and shocks such as those caused by floods and drought. Sustainable livelihoods are also viewed more as process than as a set of outcomes. Secondly, it links issues of productivity and the improvement of the quality of life to concerns around resilience and conserving the natural resource base upon which farmers depend. Thirdly, livelihoods are understood as encompassing more than income generation and there is recognition that even poor people have resources and networks that they can draw upon in sustaining themselves (Small, 2007:29). The approach is thus people-centred and requires “the involvement of those meant to benefit” from change (Morse *et al*, 2009:9). It thus meshes well with Long’s actor-oriented approach. While most understandings of sustainable livelihoods focus on meeting basic needs, as Long (2001) makes clear livelihoods are never just about basic material concerns, but also involve activities aimed at wealth accumulation and at affirming personal and group identities. In his account, Long (2001) identifies the individual as “an active agent with values and choices”, and his contribution to the sustainable livelihoods approach is to draw attention to different actor strategies, the conditions under which they arise, and their effectiveness in solving specific problems and outcomes.

Among the livelihood strategies that are often available to rural people during difficult times, Scoones (1998:9) identified the following broad clusters; i) agricultural intensification or “extensification”, that is, the process of bringing more land under cultivation, ii) livelihood diversification, and iii) migration, in which non-resident family members may play a critical role in contributing towards the well-being of resident members. These strategies can either be pursued separately or in combination, and in some cases in sequence, as determined by seasonal calendars. For example, the farmers in my case study site could be seen to secure their livelihoods through farming intensification processes that involved using more labour and material inputs, as well as through diversification into farm and off-farm income generation activities such as *ganyu*⁹ and small trading and fishing, and through migration to seek a living elsewhere. Owing to acute land shortage, however, “extensification” of farming through the cultivation of more fields was not an option for most farmers from Mphunga Group Village.

Livelihood diversification may occur as a deliberate strategy for households or be a coerced response to secure livelihoods in a crisis. According to Ellis (1998), livelihood diversification is a phenomenon of both rural and urban life and, moreover, is not confined to the developing world but is also found in industrialised societies e.g. in the adoption of part-time or home-based working patterns alongside one’s primary employment, or the decision by largescale commercial farmers to develop an additional

9 A local term that refers to part-time piece work, often but not only work.

income-earning opportunity on the side, through for instance, a paid job in town. Diversification can thus function as a “safety net for the poor” as well as a means of accumulation for the better-off (Ellis, 1998). At the same time, while it may benefit farm investment and productivity it can also threaten the farming activity if critical resources are withdrawn from the farm and invested in other activities elsewhere.

The sustainable livelihoods approach is helpful for determining the objective of developmental interventions and then suggesting the process for moving towards that broad vision. At the same time, what is important about the approach is that there are neither precise methods nor detailed blueprints that must be used (Morse *et al*, 2009). This makes the approach a relatively inclusive and participatory one, rather than a top-down imposition from experts. It also means that the framework is flexible and can be adapted to local contexts, depending on who may be doing the analysis (DfID, 1999). A sustainable livelihoods approach can be empowering for non-experts by making the issues at stake accessible for them to engage.

Here Long’s (2001) concern with social actors as well as with both structure and agency effectively integrates the actor-oriented approach and sustainable livelihoods framework. His stance, which is both a practical and principled one, compels experts to engage with people in grassroots communities in order to conduct a sustainable livelihoods analysis with them. In line with other participatory approaches to development, the approach can promote community-based learning among community members as well as between them and outsiders. In this way, the approach builds from existing knowledge bases and experiences.

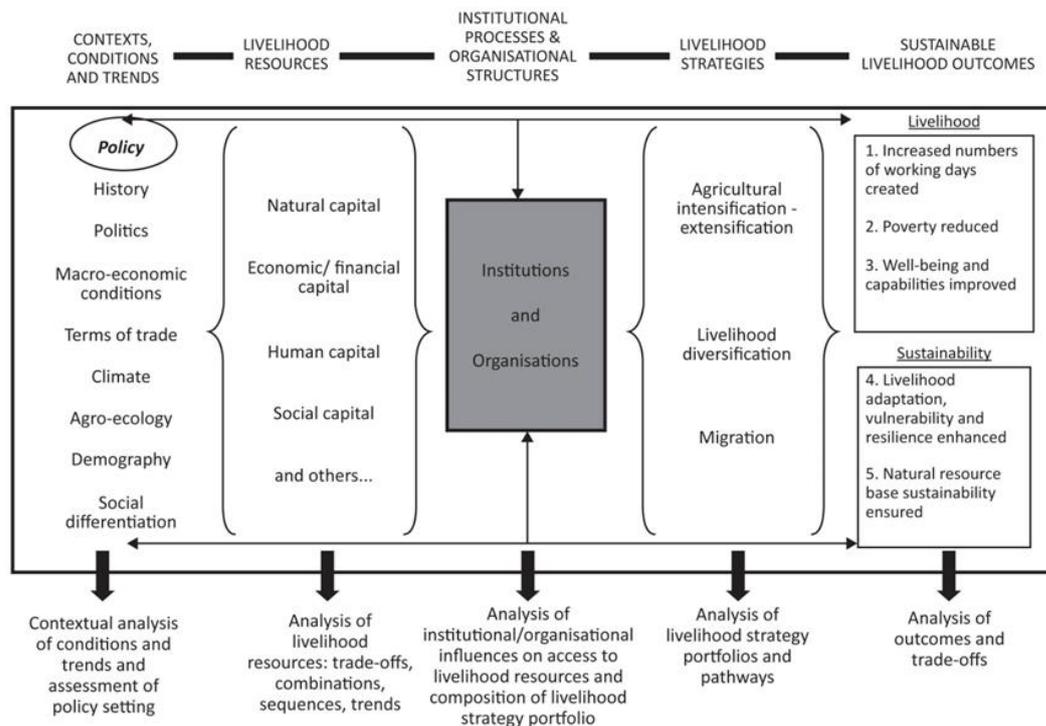
3.2.2 An analytical framework for sustainable livelihoods

Drawing together the ideas on sustainable livelihoods that were in circulation in the 1980s and 1990s, in 1998 the Institute of Development Studies (IDS) at Sussex University in the United Kingdom (UK) designed a schema for representing the generic elements of the sustainable rural livelihoods framework, and the relationships among them. (See Figure 3.1). Although, as discussed further below, this schematic representation of the relationships between all the elements of the framework has been criticised when used in an overly mechanistic way it remains a useful tool for mapping all the elements involved in securing rural livelihoods, including in responding to climate change (Batterbury, 2016:493).

As shown in Figure 3-1, the framework identifies interactions among context, livelihood resources, institutions and organisations, and livelihood strategies as significant in determining whether livelihood outcomes are sustainable for both households and communities. Livelihood resources are further broken

down into four major categories of capitals (also described as assets): i) natural capital, ii) human capital, iii) economic or financial capital, and iv) social capital (Morse *et al*, 2009). Important categories of capital that were not specified as such in the diagram include political and physical capital, although Scoones (2015) has highlighted political capital in his later work, influenced by the growing prominence of political ecology in development studies.

Figure 0-1: The sustainable rural livelihoods framework



Source: Scoones, 1998

Physical capital covers resources such as the physical infrastructure that is in place, for instance, the transport infrastructure in the form of roads and vehicles, or the infrastructure around water supply, sanitation, energy, and communications. Another important component of physical capital involves the tools, equipment and technology that can be used in production, for instance ploughing equipment (Scoones, 1998 and 2009). Natural capital refers to the “natural resource stocks” available to rural households in a given place, for example land, water, air and the environmental services that these resources may provide, for instance acting as pollution sinks (Kollmair and Gamper, 2002).

Human capital refers to the stocks of education, knowledge and skills that are available, as well as good health and the capacity to work. Kollmair and Gamper (2002:6) observe that the extent of human capital varies from household to household within any given community, because of the interplay of factors

such as “household size, skill levels, leadership potential and health status.” DfID (1999) has noted that human capital is a decisive factor in the utilisation of the other capitals, with the result that changes in human capital should not be looked at in isolation, but should be assessed in terms of their effects on the other capitals. Economic or financial capital refers to assets like cash, credit (or debt) and savings (Morse *et al*, 2009) while social capital, which I discuss more fully below, comprises social resources that are available to individuals and households through their social networks and connections to other individuals. Social capital may also embrace the social rules, norms and sanctions that regulate participation in decision-making and access to resources. It is regarded as an asset of last resort for poor communities, either on its own or in combination with other forms of capital. For instance, Morse *et al*, (2009) describe how social capital can facilitate access to other forms of capital that enable farmers to achieve their desired livelihood outcomes.

Morse *et al*, (2009 and 2013) have noted that some of the capitals listed above are fairly straightforward to identify and measure, for instance those to do with physical capital, while others, such as social and human capital, are less obvious. However, the framework proposes that all capitals are important for sustainable livelihoods, “although the balance may change from household to household and over time” (Morse *et al*, 2009:5). Furthermore, even those assets that may be regarded as relatively straightforward to measure are embedded in complexity. Once they have been identified and their contribution assessed, one still needs to explore the context in which these assets operate and this requires an understanding of actual shocks and stresses as well as insights around local trends and likely future directions. Unlike shocks, trends refer to “long-term forces that have either a positive or a negative effect on livelihoods” (Kollmair and Gamper, 2002:5). They “involve changes that take place over a longer period of time” unlike the changes brought about by shocks or seasonality” (DfID, 1999:4). Often associated with rural economies and the urban poor, “seasonality is also a key element that refers to seasonal changes that affect assets, activities, prices, production, health and employment opportunities” (DfID, 1999:4). Poorer farmers are more vulnerable to seasonal changes in the value and productivity of natural and human capital (with which they tend to be poorly-endowed) in comparison to better-off farmers.

The institutional processes and organisational structures that are identified by Scoones (1998) are important for determining the interactions between individuals and structures of the framework. According to DfID (1999:12), the structures function at varying levels, that is from the household to the international arena, and from the private to the most public sphere. They encompass the state and civil organisations that set and implement policies and legislation, deliver services, and perform other functions that impact on livelihoods – they “effectively determine access to capital, livelihood strategies and the decision-making bodies and sources of influence” (DfID, 1999:12). They also determine “the terms of exchange” between the different types of capital and returns in any given livelihood strategy (DfID, 1999). The absence of functional structures in a given environment can be a major obstacle to

sustainable livelihoods and make it difficult for households and individuals to create simple assets. Unlike other approaches that view scarcity and underdevelopment as resulting from lack of capital endowments, the sustainable livelihoods framework depicts “it as a problem of access and the possibility to control the available resources” (Koolmair and Gamper, 2002:6).

According to Morse *et al.*, (2009:23), “livelihood outcomes are what household members achieve through their livelihood strategies.” These could be improved food and income security, health, increased well-being from a sense of inclusion and self-esteem, or reduced vulnerability as a result of enhanced resilience to shocks, because of an increase in income status, or stronger asset accumulation and heightened status in one’s community. The outcomes are an indication of how successfully livelihood strategies have been deployed to ensure access to food, income or whatever welfare measures may be sought.

As an analytical tool, the framework identifies key issues that need to be assessed in considering smallholder farmers’ vulnerability to climate change, including the strategic resources which farmers may be able to mobilise in adapting to climate change and securing their livelihoods. DfID (1999:5) has noted how “A single asset can generate multiple benefits”, for example if a farmer has secure access to land (a natural capital) for direct productive activities s/he may also be able to access financial capital by using the land as collateral for loans. In the context of Mphunga Group Village, cattle ownership generates social capital in the form of social prestige but this asset also counts as productive physical capital (in the form of animal traction) while constituting a form of natural capital that is capable of reproducing over time (DfID, 1999:9).

3.2.3 Limitations of the sustainable livelihoods approach

As with other evidence-based approaches, the sustainable livelihoods framework has its critics. A recurring criticism is that it ignores or underestimates the significance of power and politics in determining access to resources, hence livelihoods outcomes (Hickey and Mohan, 2005; Scoones, 2009). In response to this criticism some analysts (Hyden, 1998; Hobley and Shields, 2000 and DfID, 2004) have explicitly added ‘political capital’ to the list of assets, and emphasised the attention to power relations through social capital. Scoones (2009:180) however, does, note that explicit references to political capital do not sufficiently engage “with the complex intersections of the structural bases of power,” political interests and competing discourses.

As far back as 2002, Carney (2002: 36) noted: “Whilst some practitioners think that the framework over-emphasises the importance of the governance and institutional context, others feel that the approach does not deal sufficiently with issues of rights and power to effectively reduce poverty.” Thus

the claim that the use of the framework in livelihoods analysis can be liberating for participants would only hold true if rural people had the power to bring about the desired changes that are highlighted through using the framework. However, this criticism is not entirely valid because the structures, policies, institutions and processes that the framework highlights can be interpreted in a variety of ways. Scoones (2009: 180) argues that “Power, politics and social difference – and the governance implications of these – have been central to these concerns.” In his latest work Scoones (2015) also reflects on the “livelihoods phase” in international development thinking (in which he played such a prominent role) and challenges the neoliberal economic thinking that can dominate the application of the framework. He argues that nurturing sustainable livelihoods for the poor should not just be about recognising their skills, but about diversifying livelihoods and “mitigating vulnerability against land grabs, droughts and floods, natural disasters, corporate greed and venal politics” (Scoones, 2015:82).

In this follow-up work Scoones partly addresses these concerns by asking new questions that extend the original framework to emphasise the political economy of livelihoods. The new questions help people make sense of their own realities, by asking: Who owns or has access to what? Who does what? Who gets what? What do they do with it? How do social groups in society and within the state interact with each other? How do changes in politics get shaped by dynamic ecologies and vice versa? (Scoones, 2015: 82). According to Batterbury (2016), the new questions raised by Scoones focus attention on the persistent vulnerability of the poor, and raise concerns around dispossession and issues of social justice. These issues have become increasingly prominent due to the growing interest in human impacts on the environment and concerns around corporate land grabs that are affecting the rural poor with insecure tenure rights over their land. Failure to engage with these new questions means failure to address the power imbalances at the centre of livelihoods and the development processes affecting the poor.

According to Kollmair and Gamper, (2002) the sustainable livelihoods approach also runs the risk of perpetuating the myth of united and homogeneous communities that participatory methods of research can promote. This is an important issue because the notion of participation contained in the framework may conceal the fact that enhancing the livelihoods of one group may effectively undermine another group’s livelihoods. Participatory development approaches claim to empower and recognise local communities as the main agents of change to transform their lives, according to the Economic and Social Commission for Asia and Pacific (ESCAP, 2009). To that extent the approaches are consistent with the actor-oriented approach. However, a number of researchers and practitioners have argued that participatory development approaches, and the sustainable livelihoods framework in particular, tend to romanticise “the poor”, which results in “participatory” processes that are uncritical and accept outcomes at face value. For instance, Cooke and Kothari (2001) warn against the seductive claims of participation by its advocates. They question the role of participatory approaches in promoting practices that are silent or naive on issues of power, and thereby reinforce existing inequalities. In referring to the

“tyranny” of participation, the authors highlight the risk of failing to recognise power differentials that may lead to reinforcing current power structures.

At the same time, Morse *et al*, (2009:15) are concerned that despite its commitment to improved livelihoods outcomes, sustainable livelihoods analysis could become an end in itself and form “the basis for lengthy reports and papers in academic journals.” They have also criticised the framework for obscuring the role of actual people. They argue that while the approach draws attention to the significance of assets, people are invisible in the framework. As a result, working with the framework often becomes “a rather mechanical and quantitative cataloguing exercise” that effectively plays into the hands of its critics. Hamilton-Peach and Townsley (no date) have raised similar concerns by asserting that the schematic representation of the framework, as shown earlier in Figure 3-1, encourages what they call a “left-to-right” reading, that is a mechanical application of the framework that follows the layout of the diagram; this, they argue, does not bode well for the supposed centrality of a people-centred analysis in the framework. Rather, because of the authority of the diagram, the attention of both the researcher and respondents tends to focus on the issue of assets. The authors also criticise the approach for underplaying the importance of social factors such as gender, age, class and ethnicity in shaping livelihoods.

DfID (1999:1), however, offers a different viewpoint, noting that it reworked the framework with the intention of focusing on people in its work, and to this end, the framework:

...does not work in a linear manner and does not try to present a model of reality. Its aim is to help stakeholders with different perspectives to engage in structured and coherent debate about the many factors that affect livelihoods, their relative importance and the way in which they interact. This, in turn, should help in the identification of appropriate entry points for support of livelihoods.

The underplaying of important social factors is also partly addressed by Scoones (2015: 112-115) who argues that analysis of the actions and politics of individuals must be combined with “the wider, structural and relational dynamics that shape localities and livelihoods,” some of which are ecological. The author further states that this requires “moving across scales”, from the micro to the macro (Scoones, 2015), a position supported by Batterbury (2016).

Hebinck and Bourdillon (2001) have expressed concerns about using the livelihoods framework as a basis for policy-making, because of its implicit reliance on expert knowledge for mapping the livelihood strategies and contexts that policies to reduce poverty (and adapt to climate change) need to address. According to the authors, this suggests that experts are best placed to determine whether certain

livelihood trajectories are more sustainable or better than others. As a result, the framework effectively reproduces top-down planning models and it could also be used to privilege markets and technology as the best institutions for allocating scarce resources optimally. Thus, farmers who may prefer not to use new technologies may be judged as inefficient, even though they may have good reasons for their decisions.

Another concern is that the livelihoods framework is not clear on how the different capitals that it identifies as important are to be assessed. Thus, Kollmair and Gamper (2002:9) have noted that it is often unclear how the different livelihood assets should be measured. For example, land is obviously an important physical asset for farming households and its extent may be easily measured and factored into the analysis. However, the reality is that the underlying patterns of ownership may be extremely complex. For instance, households may own several pieces of land that are located away from the primary residence. The measurement of social capital can also prove very difficult (Kollmair and Gamper, 2002) as can that of tenure security (Morse *et al*, 2009).

Related to this point is the issue of trust. The operationalisation of the framework in any given context requires the full participation of the actors at the centre of the analysis. However, “asset ownership can be sensitive for all sorts of reasons” (Morse *et al*, 2009:15). It would, therefore, not be surprising for households to hold back information from researchers because they feared that their answers could put them at a disadvantage; this would then result in the asset in question being allocated a lower value than it actually had, which would end up distorting the sustainable livelihoods analysis outcome. This issue is particularly pertinent in my case study, Mphunga Group Village, where government farm inputs and relief aid are targeted at the poorest households and those most negatively affected by floods. As my study confirmed, this encourages better-off farmers to withhold information about their assets and wealth in order to qualify for state relief assistance which is targeted at poorer households.

A further criticism from Kollmair and Gamper (2002: 10) and Morse *et al* (2009) is that the holistic nature of the sustainable livelihoods framework delivers a flood of information that is difficult to cope with. Scoones (2009) underscores this point by noting that livelihoods perspectives were often dismissed as being too complex and incompatible with the challenges and decision making processes of the real world. Having too many aspects to consider leads eventually to the dilemma of what to prioritise. Besides, by improving a specific group’s livelihoods could result in negative effects on the livelihoods of others.

At the same time, the sustainable livelihoods framework has also been criticised for placing too much emphasis on the local community (Kollmair and Gamper, 2002) and overlooking developments at the macro level, such as processes of economic globalisation. Even though many of the elements of the

framework function at the micro level, they are effectively shaped by institutions, laws and regulations decided on the macro level. Furthermore, despite the reference to “sustainable”, the livelihoods approach often lacks “rigorous attempts to deal with the long-term secular change in environmental conditions” despite the availability of data “confirming the impacts of climate change in the parts of the world” most affected by poverty (Scoones, 2009: 182). According to Morse *et al.*, (2009:15), “while there is an attempt to assess vulnerability (shocks or trends) there is much unpredictability especially at macro-scales” to contend with. They cite the global impact of the 2008/2009 credit crunch as an example. While such shocks can have massive impacts on households, including on decisions to abandon the land and migrate elsewhere, they are difficult to track at the local level.

However, despite the many difficulties associated with the sustainable livelihoods framework noted above, the approach has significant strengths, for the reasons outlined in sections 3.2.1 and 3.2.2; arguably, engaging with the criticisms has strengthened its usefulness as an analytical framework rather than a precise toolkit. It offers researchers a perspective and framework with which to examine the inter-relationships among the various elements that it identifies, including the policy context in which livelihoods and different forms of capital exist. The rise of the livelihoods framework in rural development thinking and practice made a difference that saw development funds (especially from DfID) being spent in different ways. Scoones (2009:181) goes further to note that “new people with different values and skills were hired, and for once, even if grossly inadequately, local contexts were better understood and poor, marginalised people were involved in plans and decisions.”

Another important dimension of the framework is its focus on social networks and social capital. This emphasises the agency of poor people who are often viewed in development studies as powerless victims who are unable to determine their objectives and achieve their life choices. The sustainable livelihoods framework, in contrast, draws attention to the extent to which they may be well networked among themselves as well as with outsiders and experts in different spheres. In the next section, I explore the literature on social capital more fully, and review its strengths and limitations as well as the challenges of measuring it.

3.3 Social capital

3.3.1 Defining social capital

As already highlighted in the previous discussion, social capital has emerged as an important concept in understanding how local institutions work and the importance of social networks for individuals’ and communities’ access to scarce resources. It remains an influential sociological concept (Van der Gaag

and Snijders, 2002) that has been taken up in development work in many different contexts (Du Toit and Neves, 2009). However, the widespread use of the concept across different disciplines has led to a lack of consensus over its core meaning (Clark, 2008 and Durlauf and Fafchamps, 2004), with social capital described as both an asset of last resort when everything else fails and as an asset that facilitates access to other forms of capital that assist poor households achieve desired livelihood outcomes (Lin, 2001; Portes, 1998:15; DfID, 1999:9; Flap, 1999 and Morse *et al*, 2009).

Debates on the meaning of social capital and the specific aspects of social organisation that it covers have been on-going for more than 30 years, stretching back to the pioneering work of scholars such as Bourdieu (1985), Coleman (1988) and Putnam (1993, 1995 and 2000). An enduring feature in definitions of social capital is the idea that it is a “resource for action” that is primarily accessed through membership of social organisations and networks in which shared norms and social trust help to foster cooperation among the members (DfID, 1999; Stone, 2001). In this vein, Putnam (1995) identified the following as important components of social capital: i) social networks, especially voluntary association, ii) social values, with trust featuring as a key primary value), and iii) moral obligations and norms.

As with “other types of capital, social capital can also be valued as a good in itself making an important contribution to people’s sense of well-being and belonging” (DfID, 1999: 10). At the same time, Coleman (1988: 104) warns that while social capital is a source of useful everyday information that can facilitate access to other forms of capital and networks, it can also be restrictive. Social capital is however, a contested concept (Pelling and High, 2004). Among other issues, social capital has been criticised for its bias towards positive outcomes at the expense of addressing its negative outcomes (Portes, 1998; Turner, 2007, Haynes 2009; Du Toit and Neeves, 2009); it has also been criticised for being an elusive concept that is seen as a cure-all for all social issues (Durlauf and Fafchamps, 2004). Related to this, there are issues around the measurement of social capital that still need further work to take social capital beyond its “promising” stage, according to Van der Gaag and Snijders (2002).

In the context of the sustainable livelihoods framework, DfID (1999:9) has defined social capital in terms of the “social resources upon which people draw in pursuit of their livelihoods.” These resources are primarily established in three main ways. The first is through networks and connectedness which tend to increase the trust and ability of people to work together, resulting in the broadening of their social networks. The second is through membership of formal groups that involve an adherence to common rules and sanctions. The third way is through social relationships that are aided by trust, reciprocity and exchanges which facilitate co-operation. These relationships help to reduce transactional costs and provide “informal safety nets amongst the poor” (DfID, 1999: 9). From this perspective, social

capital is embedded in the cultural practices, norms and social fabric of communities and it is therefore comparatively more accessible than other forms of capital.

As already noted under the sustainable livelihoods framework discussion, social capital is an important asset that can help communities to bounce back from disruptive events such as floods or earthquakes (Taylor and Goodrich, 2011: 4). It facilitates information flows and reinforces identity and recognition among actors (Lin, 2001). In the face of severe disruptions to their lives, people and communities mobilise their own resources and draw on what is available in the form of known networks and systems of social support. Lin (2001) argues that “who you know” as well as “what you know” makes a difference in life and society. He defines social capital as “an investment in social relations by individuals through which they gain access to embedded resources to enhance expected returns of instrumental or expressive actions” (2001:17). In other words, the concept of social capital refers not to the actual social networks and relations in which it is found, but, rather, to the resources embedded in and accessed through these relations. These are critical for individuals, social groups, organisations and communities to achieve their goals (Lin, 2001:7).

Importantly Lin (2001) recognises that social capital is generally not an equally shared resource within communities. For instance, residents who have stayed longer in a place tend to have stronger ties, more extensive networks and more attachment to their local community than newcomers. Access to resources may change over time with older residents becoming more vulnerable when their networks dwindle and even die out over time. The author further argues that pressure builds up on the social capital that people are able to accumulate when competing needs of community, family and working life arise. Lin (2001) further states that changing demographics, migration of family and friends and the growing population of newcomers with less extensive networks and family support may also increase the pressure on social capital. Ellis (1998: 4) points out that factors such as birth, age, gender and caste all determine access to social capital and that “stocks may differ within the same household.” As discussed further below, these limitations become important in assessing the value of social capital in individual and community responses to extreme weather events and climate change.

3.3.2 Role of social capital in climate change adaptation

Social capital is clearly a useful concept for understanding the capacity of communities to cope and or adapt to the impacts of climate change. Initial work by Pelling and High (2004:1) that incorporated a social capital framework into their analysis “produced significant findings for our understanding of (climate change) adaptation among communities.” According to the authors, “economic evaluation frameworks on their own have limited capacity to explain the pressures shaping communities’ adaptive choices” (Pelling and Hugh, 2004: 1). At the same time the authors also recognise the contested nature

of social capital as a sociological concept and argue that the focus on social phenomena such as trust and social norms “moves the science of climate change adaptation into a territory where measurement and quantification becomes difficult” (Pelling and High, 2004: 1).

During crises and shocks resulting from climate change, deep reservoirs of social capital can play an important role in helping communities survive extreme weather events and speed up recovery through the sharing of information, material resources and labour (Pelling and High, 2004; IPCC, 2014; Aldrich *et al*, 2016; Aldrich, 2017, 2018a and 2018b and Kerr, 2018). Adger (2003:387) offers case studies of “collective action for coping with extremes in weather” which demonstrated how important social capital was in building resilience within communities. The power of social capital in building adaptive capacity in the face of extreme weather events was also shown by Kithia (2010) in the coastal towns of Kenya and Tanzania, and by Aldrich (2012) with reference to a Mozambican study which showed how households without farming implements and inputs benefited from their relationships with fellow community members to acquire these items and cope with their adverse circumstances.

What is important to note is that social capital does not only function in terms of access to material support; it is also an important source of emotional support in times of crisis. According to Aldrich *et al* (2016:8), “individuals with strong social ties to neighbours, feelings of attachment and place, and a vision for their neighbourhood’s future are more likely to return and restore a damaged neighbourhood.” They may also link up with decision-makers and seek to bring about policy changes and create more sustainable societal practices, whereas those who are less socially connected are more likely to see the benefits of migrating to start life afresh elsewhere.

However, although social capital can facilitate the building of resilience and recovery from extreme weather events brought about by climate change, its impacts are not uniformly beneficial across communities (Du Toit and Neves, 2009; Osei, 2016; Aldrich, 2018 Kerr, 2018). While the level of social capital may be a strong predictor of adaptive capacity and post-disaster recovery for communities affected by climate change (Adger 2003; Pelling and High, 2003, 2004; Adger, Arnell, and Tompkins, 2005; Pelling, O'Brien and Matyas, 2015), social capital can operate to exclude those regarded as outsiders, for example ethnic minorities and new arrivals, and thereby reinforce their vulnerability. Furthermore, on its own social capital may not offer sufficient support to those in crisis because it only allows the vulnerable to “get by” during the crisis; it is not sufficient to help them “get ahead” (Aldrich *et al*, 2016). This is partly because community members in a particular network may be equally deprived of resources during a crisis or geographically constrained to help.

Rahill, Ganapati, Clerisme and Mukherji (2014) state that having high levels of social capital may encourage intolerance among those who have it, as was shown in the aftermath of the 2010 earthquake

in Haiti. Those with social connections were more readily able to access shelter than displaced Haitians who did not have such social resources, thereby reinforcing old or creating new inequalities. Social capital can also strengthen problematic social norms that reinforce unequal gender and other social relations and thereby exclude marginal groups (such as widows, the elderly and the disabled) from receiving relief aid (Aldrich, 2012). Additionally, analysts drawing on ideas around social capital do not always consider intra-household relationships. In contexts like that of my study site, where social networks that can strengthen economic activities are often built around relationships among males, the activities that promote social capital tend to reinforce male social structures at the expense of women.

The major point to take from studies that reveal the negative side of social capital as an individual or collective asset is that it is not a neutral resource. It can act as a barrier for those excluded from powerful networks as well as an asset for those with substantial access to them. High dependence on others also tends to reduce motivation for individual action (Paul, Weinthal, Bellemare, and Jeuland, 2016). For these reasons social capital can be an obstacle to effective adaptation strategies and lead, rather, to what can be regarded as “maladaptation” to climate change (Barnett and O’Neill, 2010). However, Barnett and O’Neill emphasise the value of understanding maladaptation within a social capital framework, because of the usefulness of the concept in drawing attention to the importance of social networks and shared norms and behaviours in shaping responses to climate change.

3.3.3 Criticisms of the concept of social capital

Critics of the concept of social capital such as Portes (1998), Arrow (1999), Bowles (1999), Fine (2002), and Durlauf and Fafchamps (2004) have argued that despite all that has been written on the subject, there is still no ready agreement among its advocates of what they mean by it. In the late 1990s, Woolcock (1998:155) complained that “social capital’s revisionist grounding in different sociological traditions risks trying to explain too much with too little.” He further noted that “ordinarily, a theory’s capacity to explain the most with the least is a desirable property; in this instance, however, a single term is being adopted indiscriminately, adapted uncritically, and applied imprecisely” (1998: 196). Furthermore:

a single term is inadequate to explain the range of empirical situations demanded of it. If social capital can be rational, pre-rational, or even non-rational, what is it not? At the very least, these different conceptualizations suggest that there may be various forms or dimensions of social capital (Woolcock, 1998:159).

In his analysis of the various applications of social capital in sociology, Portes (1998: 21) observed that “The set of processes encompassed by the concept are not new and have been studied under other labels

in the past. Calling them social capital is, to a large extent, just a means of presenting them in a more appealing conceptual garb.” The author further noted that while it might be true that social networks have economic value to participants, as a generalisation the claim hides as much as it explains. He argued that by treating the concept as a coherent whole, separate from the themes through which its meaning is derived, researchers would fail to explain how the specific mechanisms of trust, community, reciprocity, interpersonal relationships and networks impact on the features they are investigating (Portes, 1998).

In similar vein Fine (2002:796) complained that “social capital is a fundamentally elusive concept, explaining almost any social science phenomenon with a capacity to draw uncritically on any handy analysis.” While the many attempts to clarify the concept “attests to the perceived robustness of social capital as a potentially useful academic concept, there is criticism concerning its implications as a theory, and in terms of the type of explanations it affords” (2002: 799). Durlauf and Fafchamps (2004: 3) concur that the concept remains elusive and “no discipline has yet managed to impose a definition that captures what different researchers mean by it.” For his part Haynes (2009) argued that the criticisms of the concept are derived from numerous perspectives, with quite different assumptions.

More tellingly, Haynes (2009: 3) notes that a serious problem with social capital is that it is “based on a misleading metaphor”, that of capital: what its proponents refer to as social capital is different from what economists describe as capital. On this point, Bowles had previously argued that “while the concept of social capital might describe important relationships, the term itself and the way it is conceptualised is unlike other forms of capital hence it should be abandoned altogether” (1999: 6). The attributes making up social capital (for example, trust, commitment to others and adhering to social norms) effectively describe the relationships among people rather than capital in the conventional sense of the word (see also Arrow 1999.) Fischer (2005:157) also argued that the term social capital is “unnecessary as other clearer and simpler terms, such as membership, trust and sociability can do well on their own.” Even before the content of the concept is examined, “the use of the word “capital” is a hindrance that must be addressed and its meaning fully unpacked” (2005:157).

However, the concept of social capital has proved remarkably resilient in sociological theory, as evidenced in its take-up in the Sustainable Livelihoods Framework and its subsequent applications. In defence of the term, Sobel (2002: 145) argued that, “despite the criticism from a variety of perspectives, the concept of social capital remains appealing, so much that there is a reluctance to concede it on the basis of a stretched metaphor.” The use of the term has been strategically useful in identifying the role of networks and social relationships in people’s livelihood strategies and distinguishing their significance from other (contested) non-material factors, such as human capital and intellectual capital. Sobel (2002: 145) further argues that, “even though the strengths of the analogy are not persuasive

enough to justify the terminology, the use of the term ‘social capital’ can be justified.” This is because existing literature builds on this strategy and provides convincing evidence that the topics that fall under the social capital umbrella are worthy of study. “A vague keyword is not sufficient reason to condemn a promising line of research further” (Sobel, 2002: 145). In other words, the concept has value not as a fully formed theory but because of the way it can be used in describing, explaining or reformulating important social phenomena. According to Haynes (2009: 9), most academics and researchers are much less concerned with questions related to theoretical rigour in the conceptualisation of social capital than with the themes that can be related to and explored through the idea of social capital.

Thus, despite the scruples of some social theorists the concept has expanded into new areas of social science research, with the number of articles and citations continuing to grow. For Lin (1999: 48), “the reason for such expansion is because the collective credibility of the research is good, anchored in social networks research.” Van der Gaag and Snijders (2002: 1) adopt a similar line of argument, noting that “a large body of research that applies social capital theory at various levels of analysis has already been produced, and there are empirical studies that are viably investigating the effects of social capital.” At the same time, as the literature reviewed in section 3.3.2 above shows, social capital should not be seen as a uniformly benign force within communities.

3.4 Conclusion

This chapter has reviewed the core features of my conceptual framework, beginning with Long’s celebrated actor-oriented approach that helped break the hegemony of top-down development interventions by international development agencies. An actor-oriented approach enables critical engagement with the complex relationships and differentiated interests among social actors who are not homogeneous. It explicitly acknowledges the reality of power differences and the hierarchical nature of relationships in society. It also directs attention towards identifying the key actors in a given system, mapping the linkages and information flows between them, and looking at how these inhibit or enable the system. In complementing the actor-oriented approach, the sustainable livelihoods framework focuses on the ability of social actors to put a living together, *inter alia* by identifying the important assets they are able to mobilise and the wider context in which this takes place. Despite the definitional and operational challenges associated with this framework, it offers a useful set of tools for exploring rural livelihoods which I have taken forward in the development of my research methodology, to which I turn in the next chapter.

In this study I have deployed the livelihoods framework to identify the strategic resources, including social capital, which the smallholder farmers in my study are able to mobilise in understanding and

responding to the impact of climate change on their lives. In resource-challenged environments social capital has been identified as a key asset, particularly but not only in times of crisis. Climate change and global warming are complex challenges that require multiple strategies in order to solve many interconnected problems. Social capital can play a significant role in linking individuals and groups in times of crisis and can thus be seen as also an important predictor of the capacity to recover from natural disasters and adapt to climate change in vulnerable communities. However, as the previous discussion has also made clear, it is not a neutral resource and does not benefit everyone equally across affected communities.

Chapter 4: Research Design and Methodology

A research design entails “a plan and procedure for one’s research that spans the full range of decisions that have to be made, from broad assumptions to detailed methods of data collection and analysis” (Creswell, 2008:3). These decisions are informed by a range of factors, including the philosophical assumptions and personal experiences a researcher brings with him or her to the study, the nature of the issues being investigated, who the audience for the study is and what the practical considerations are to do with access, funding and time frames for the study. In this chapter, I first account for my mixed-methods case study research design and summarise the various research methods I used. In section 4.2 I briefly review how I operationalised my conceptual framework through my methodological choices, here paying particular attention to key issues arising from the actor-oriented approach and the sustainable livelihoods framework and how these are reflected in the various research methods that I adopted for my study. I then discuss each of my research methods in more detail in section 4.3 before discussing my data analysis in section 4. Finally, in sections 5 and 6, I take a step back to reflect first on issues around research ethics and then the limitations of my study.

4.1 A mixed-methods case-study research design

4.1.1 The case study

This dissertation is designed as a case study of smallholder farmers in Mphunga Group Village and their understandings of and responses to climate change. Case studies are defined in several ways, but common to the various definitions is that they involve the detailed exploration of specific phenomena within the natural setting in which they occur. Creswell (2008: 13) describes a case study as “an established qualitative research design approach used in a wide variety of disciplines to generate a multi-faceted understanding of a complex issue in its real-life context.” He also notes that a case-study research design “lends itself to the use of mixed-methods, which can facilitate a more holistic understanding of the phenomenon being studied.” (2008: 3). According to Yin (2003), case studies can perform a number of functions, including describing, explaining and exploring different phenomena.

Critics of case study research design argue that the researcher’s exposure to just one case can unduly influence the research outcome (Stake, 1995). Challenges may also arise in cases where the chosen research site may already have been the focus of other studies. In such cases, research participants get overly exposed to research activities that interrupt their lives, which can, in turn, lead to what has been termed “politeness bias”, in which they give the same responses to different researchers, not because of the inherent veracity of these responses but because they want to get the research process out of the way

as quickly as possible so that they can get on with their daily lives. This was a consideration in my choice of Mphunga Group Village, where farmers have been subjected to previous studies on the impacts of climate change (Action Aid, 2008; Red Cross Society, 2009 and 2010 and Mwenelupembe, 2011 among others). My strategy for dealing with potential bias of this sort was to review the reports from previous studies and use them as reference points during my own discussions with the farmers. I also checked with respondents to find out who had participated in previous research exercises and asked them for their understanding of the differences in the different studies.

There are additional challenges associated with a case study design, which need to be carefully managed. One challenge, particularly acute with mixed-methods studies, is the danger of collecting overwhelming amounts of data, which can result in researchers finding themselves “lost” in all their empirical data. To deal with this, Yin (1984) and Stake (1995) advise researchers to manage their multiple data sources very carefully, for instance, by using a database to keep track of and organise their material. This was advice which I considered in developing and undertaking my own study.

Despite the challenges associated with the case study approach, I chose it because of its advantages, in particular because it allowed me to explore my chosen research interest in an in-depth manner, within a specific social context. Issues of meaning and understanding are central to my study, and these are best studied within the actual social and livelihood contexts in which smallholder farmers are struggling to respond to the impacts of climate change on their lives.

4.1.2 Mixed-methods research

In operationalising their research design, researchers have to decide on their “strategies of inquiry” or their specific research methodology for carrying out their study. Denzin and Lincoln, (1994: 202) define a strategy of inquiry as “a process that is used in order to connect researchers to specific approaches and methods of collecting and analysing empirical materials.” Similarly, Creswell (2008: 11) describes strategies as “providing specific direction for the procedures to follow in a given research design.”

Whilst there are several different approaches to characterising research design, social scientists generally divide them into three main types: i) qualitative, ii) quantitative and iii) mixed methods. However, Creswell (2008) cautions against regarding these three approaches as discrete and suggests that they should, rather, be seen as different points along a continuum. Because mixed-methods research, the approach which I have adopted, features both quantitative and qualitative elements, it can be seen as located somewhere in the middle of the continuum. Qualitative and quantitative research methods have evolved over time, with quantitative approaches initially dominating social science

research in the late 19th and early 20th century, and interest in mixed-methods growing in the latter half of the 20th century (Creswell, 2008: 4).

As the name indicates, quantitative research methods rely on “quantifying or measuring and statistical analysis” (Creswell, 2008:4) and include surveys, questionnaires with closed rather than open-ended questions, secondary analysis of other datasets, performance tests, observation checklists and, at times, archival research. Qualitative research, however, is less structured and makes use of a range of methods such as observation, open-ended interviews, focus group discussions, story-telling and discourse analysis. As described by Vickers and Offredy (2010:79) quantitative methods are “often associated with identifying and explaining causal relationships between events whereas qualitative methods are usually associated with the search for meanings rather than for causes” and with “the interpretations and the motivations of people.”

Quantitative methods have several advantages over qualitative methods, inasmuch as they can be “easier to administer; can involve a larger population sample and accommodate a large number of questions; are easier to summarise and compare, and are more widely accepted by policymakers and other users of research as a form of evidence” (Vickers and Offredy (2010:83). However, the data generated from quantitative research methods is generally less rich and less nuanced in comparison to data generated from qualitative methods. The large amounts of data generated may also require more sophisticated analysis techniques than many researchers can undertake on their own (Vickers and Offredy, 2010).

A mixed-methods research methodology combines both quantitative and qualitative forms of inquiry and, ideally, benefits from the advantages that each offers the researcher. Vickers and Offredy (2010) note that a mixed-methods research design allows the researcher to make pragmatic choices and use all the research methods that are available to address the different aspects of a given research problem. Thus, the mixed-methods approach enables researchers to use both words and numbers, deductive and inductive thinking and, by mixing their datasets, researchers are able to gain a more informed understanding of a problem, compared to using only qualitative or quantitative datasets on their own (Creswell, 2008).

4.1.3 Core Reference Group and research assistants

My core fieldwork extended over two years (2012 and 2013), during which time I based myself in the village for three months, from April to June 2013. (See Appendix 1). In March 2013 I established my Core Reference Group of 56 respondents who had been identified by their respective villages as representatives to facilitate my study. This came about during my meetings with farmers and their

leadership structures, in December 2012, when I formally sought their permission and informed consent for my study and their participation in it. In identifying the members of this reference group the village leadership insisted on equal representation in the study of all 13 villages comprising Mphunga Group Village, despite the fact that the villages were of different population sizes. Their rationale was that each village should participate in and benefit from the research equally, in order to avoid conflict. Using their own selection criteria, each village then identified four respondents to participate in the Core Reference Group, along with one representative from the four community leadership structures. My preliminary fieldwork focused on this group, for instance through the PAR exercises that I used to familiarise myself with local conditions and local perceptions of dynamics. The group remained a primary source of information, verification and assistance throughout my study.

There were some qualifying conditions that were negotiated around membership for members of the Core Reference Group from each village, namely: i) having resided in Mphunga Group Village for five years or more in order to be sufficiently informed on the village history; ii) no meetings would take place during funerals and over weekends; iii) only one meeting held per day and for no more than three hours to allow members time to attend to their fields; iv) incentives of cool drink and bread would be served to all members after meetings, at the researcher's cost; v) only willing farmers aged 18 years and above could participate in the study and vi) each village was to be represented by both men and women, both married and unmarried. The final gender breakdown was 29 men and 27 women; education levels ranged from those who had never been to school to Form 4, and out of the 19 who had never been to school six were men and 13 were women. And 23 of the 56 members had secondary education (Standard 6 and above) whilst 5 had primary school education. In terms of age, most of the farmers (32) were young and between 22 years and 39 years whilst those aged 50 years and above were 12. Further details of the membership of my Core Reference Group are provided in Appendix 2.

The considerations discussed in section 4.1.2 influenced my decision to adopt a mixed-methods approach in the field. Although my earlier training has been in qualitative rather than quantitative research methods, in the end my final design was shaped by my overarching research concern with how smallholder farmers in my study site themselves understand and are responding to the phenomena that experts describe as climate change and its impacts on their livelihoods. My final research design thus involved a range of qualitative research methods aimed at eliciting meanings and exploring social dynamics – observation, semi-structured key informant interviews, participatory action research (PAR) techniques (including a wealth ranking exercise), core reference group discussions and life histories – as well as quantitative methods in the form of a structured household survey that was designed to provide an overview of household structure and livelihood strategies in Mphunga Group Village.

Table 0-1: Summary of primary research methods and techniques used

Research method	With whom	Number of respondents	Period	Research instruments
Observation	Farmers as Core Reference Group members and as ordinary community members	Varied from specific contexts and events, ranging from small interactions to community meetings	2010-2013	Observation, including participant observation in certain activities and at specific periods like flooding, funerals and meetings.
PAR exercises, wealth ranking and Core Reference Group Discussions	Core Reference Group	56 and sub-divided into smaller groups and gender groups for the village mapping exercise)	March - April 2013	Village mapping; transect walks; wealth ranking exercise; daily time-use schedules; seasonal calendars; timelines for key historical events
Household survey	Sample of the Mphunga Group Village households	129	May 2013	Structured household-survey questionnaire
Semi-structured interviews	Key informants	38	April-July 2013, October and December 2013	Semi-structured interview schedule and Semi-structured key-informant-interview questionnaire
Life histories	Selected farmers from the Core Reference Group Members	10	April-June 2013	Life-history profile schedule; Social Capital Measurement Question Set

I also made use of documentary analysis, encompassing both quantitative data (for example, census reports) and qualitative data (for example, government policy documents and NGO reports), further supplemented by engagement with other published and unpublished studies relevant for my research. The range of methods I adopted are summarised in Table 4-1 and elaborated on above. At the onset of my fieldwork I also interacted with four potential research assistants (two men and two women) who were Chichewa-speaking and had been recommended to me by contacts from the then Bunda College of Agriculture's Centre for Agriculture and Rural Development (CARD) in Lilongwe.¹⁰ They were all university graduates with a few years of working experience in research and rural development. I

¹⁰ The College is now the Lilongwe University of Agriculture and Natural Resources Management.

wanted to engage research assistants mainly to help me with translation between English and Chichewa in the field, as well as assist with co-facilitation of group discussions and taking notes during meetings between my research respondents and myself. While I had basic understanding of Chichewa and spoke little enough to exchange greeting and ask for directions, I needed assistance to hold conversations. I was also interested in drawing on their observations of significant issues during the fieldwork, through the sharing of insights during daily debriefings.

I ended up selecting two of these potential recruits, one male and one female, to work with me as my research assistants. I wanted to have the flexibility that having both a male and a female assistant afforded me in contexts where it was important that my respondents (who were both men and women) should be put at ease when discussing gender-sensitive issues. My two assistants were fluent Chichewa speakers and understood the research context and local customs. They also had previous research experience of working with farmers and on climate change issues. I spent two days training them, which included discussing and familiarising them with my research tools and issues around research ethics. During this period, I also checked on and brushed up their facilitation skills, interviewing techniques and general social etiquette.

4.2 Operationalising my conceptual framework

4.2.1 The actor-oriented approach

Operationalising the actor-oriented approach required, firstly, that I recognised the people whom I was interacting with as a researcher as actors and agents in their own right, not just objects of enquiry, and, secondly, that I used research methods that would help me identify and understand the differing views and practices of these actors, the conditions under which these views and practices arise, and “their effectiveness for solving specific problems, and their wider social ramifications” (Long, 2001: 20). Long has noted that “life worlds” are essentially actor-defined, as opposed to observer-defined, which led him to emphasise the value of ethnographic research, “because it offers a deeper study of various important facts” (Long, 2001: 20). Here it is necessary to acknowledge that my study was not designed as a full ethnography, partly because my sociological training had oriented me to other forms of qualitative research but also because the nature of my personal and work commitments meant that I was unable to immerse myself in the field for an extended period beyond my one three-month stay, supplemented by a series of shorter visits. However, in my research design I have drawn on sociological research methods that are commonly found in ethnographic studies, such as participant observation and focus group discussions, while also using actor-oriented qualitative research methods that are aimed at eliciting meanings, such as semi-structured interviews and open-ended life-history discussions. The close contact that I developed over time with the farmers in my Core Reference Group enabled me to

blend in with them when they were involved in their daily chores or participating in the periodic meetings that were held in the area during my fieldwork. Such contact helped me deepen my understanding of their “life worlds” and to be sensitive to the myths, belief systems and social relationships and institutional dynamics shaping people’s lives across Mphunga Group Village.

During my fieldwork, I was also able to observe interactions in the common meeting and recreational places for men and women within the village. Places such as tea rooms, bicycle repair centres and the market are places where some of the most networked and influential local actors hang out and where village politics, gossip and information about piece jobs, the weather and other subjects are exchanged. The male farmers relaxed by playing games (for example, *bawo* - a traditional board game) at places like the “Labour Centre” in Kandulu Village. These are thus important sites for villagers to build or confirm social networks and hierarchies and therefore for the deployment of social capital. Of note is that these spaces tended to be gendered, with male and female residents gathering at different places for some forms of socialising and networking. However, access could be negotiated and my female research assistant helped to access the spaces that women gathered and engaged in discussions.

In order to understand the creation and transformation of knowledge, I also considered the ways in which farmers managed the critical “knowledge interfaces” that constitute the points of intersection between their “life worlds” and that of others, including external experts. Age proved to be an important consideration here. As discussed in Chapter 8, some youth from Mphunga Group Village are enrolled by outside experts to “vernacularise” (Long, 1999:4) the dominant discourse on the causes of climate change, without their necessarily having an understanding of the science behind the discourse. In contrast the elderly, generally less educated farmers were more likely to deploy and defend local knowledge about how the phenomenon of climate change should be understood and dealt with.

4.2.2 The sustainable livelihoods framework

As already discussed, the sustainable livelihoods framework focuses on how sustainable livelihoods are achieved “through access to a range of livelihood resources (natural, economic, human and social capitals) which are combined in the pursuit of different livelihood strategies such as agricultural intensification/extensification, livelihood diversification and migration” (Scoones, 1998:1). The framework served as a useful initial checklist for purposes of planning my different research steps and for engaging in preparatory discussion with key informants in Mphunga Group Village; also useful was a 1999 study by Brock on implementing the sustainable livelihoods framework in policy research in Mali, which I drew on in planning my fieldwork. The major methodological challenge I faced in adopting this framework was how best to incorporate a complex phenomenon like climate change and the views of different actors within an already dense and multi-faceted analytical framework. On a more

practical but also ethical level, I faced the question about how my research could serve the interests of the farmers from Mphunga and contribute to appropriate policy development.

To understand the weather events and climate change, during floods I visited my field site to interact with the Village Civil Protection Committee as well as attend flood rescue meetings of the District Civil Protection Committee that was coordinated by local NGOs and experts, under the Salima District Assembly. These visits and meetings afforded me an opportunity to observe, understand the context, conditions and trends of floods before, during and after the events. This helped me to assess and see how social capital and other resources were deployed by farmers through social networks and collective action by local government, NGOs, farmers' informal social networks and clubs. I interacted with experts from the formal institutions during these times to understand the history, policy settings and impacts of the floods on livelihoods as well as the experts' different and complimentary roles during natural disasters and risk mitigation.

The framework directed me to pay particular attention to how the farmers from Mphunga Group Village negotiate access for resources to sustain their livelihoods as well as the larger environmental, political and institutional context within which their livelihood strategies take place. This called for a range of research methods. For example, in assessing the policy setting and tracking climate conditions and trends, I reviewed Malawian government policy documents, national statistical records, socio-economic development reports, historical records from the Salima District Assembly office and NGO project documents but I also asked farmers and other key informants about the issues that were central for them to secure livelihoods and how these might have changed over time. Here methods such as core reference group discussions, semi-structured key informant interviews and individual life histories proved useful, along with PAR techniques such as seasonal calendars and the household wealth ranking exercise. In order to gain a broader view of livelihood strategies and the distribution of capitals across households I determined that a socio-economic household survey of a representative sample of Mphunga households would be appropriate, but I also sought to investigate the role of other players in promoting various livelihood strategies and used focus group discussions with my Core Reference Group to explore how sustainable these strategies were proving in the context of extreme weather events.

To assist in identifying more and less resilient households I decided to use the PAR technique of wealth ranking as a method. In the context of Mphunga Group Village, openly asking farmers to rank themselves according to wealth criteria was difficult, as social norms inhibit people from openly displaying or boasting about their wealth. To get around this challenge, I resorted to asking farmers to rank their neighbours according to their perceived wealth. I worked with fellow farmers to second the proposed ranking and the ranked farmer was given an opportunity to implicitly agree or oppose his or her ranking.

4.2.3 Assessing social capital

In operationalising the concept of social capital in my study I have drawn on the framework for measuring social capital discussed in the previous chapter (see Table 4-2 below) and worked with the three main dimensions and their associated indicators across my various research methods, from observation through to my household survey and semi-structured interviews. I also operationalised the concept of social capital in my in-depth discussions with the 10 farmers whose life-history profiles are outlined in Appendix 3, using a set of social capital questions shown in Appendix 4. The set of questions drew on the social capital measurement framework developed by Harper and Kelly (2003) that I adapted and applied in my research context. The life histories gave me an opportunity to explore the significance of social capital in individual lives and collective action, over time.

A number of studies (Woolcock 1998; Van der Gaag and Snijders, 2002; Adger, 2003; Harper and Kelly, 2003; Pelling and High, 2004; Fischer, 2005; Aldrich 2012, 2018a, 2018b) have highlighted the need for a consistent approach in the measurement of social capital but in practice a variety of approaches, using different indicators, have been used. According to Harper and Kelly (2003: 4), the proliferation of approaches suggests that the studies have aimed to meet different needs, which has led to inconsistencies in measurement, concepts and definitions - because “social capital is a multidimensional concept” some dimensions are likely to be “more relevant to certain policy areas than others.” The authors argue that a harmonised approach is important but without an agreed and consistent definition of the concept of social capital, its measurement and the interpretation and analysis of the data remain a challenge.

In this regard Durlauf (2002:477) observed that “social capital can be researched but cannot permit the type of analysis with the clarity and precision that the advocates in the field claim.” More recently, Haynes (2009:10) alluded to the “problem of measurement and other empirical indications related to the amount in the type and quantity of social capital.” As a result, the empirical literature on social capital was inundated with poorly measured data leading “to the crucial question of how the concept becomes operationalised in research” (Haynes, 2009: 15). However, they identified several reasons why it is important to measure social capital. The first is that the ability to measure social capital more scientifically and consistently would make the concept more tangible. The second is that being able to measure social capital on the ground could assist in identifying where it is lacking or weak and in need of support and thus help local people build stronger reserves of social capital. They also caution that: “In a performance-driven era, social capital risks being relegated to second-tier status in the allocation of resources, unless there is evidence showing results” (Harper and Kelly, 2003:1).

In considering ways of assessing social capital in my study site, I looked at various frameworks developed for other purposes and compiled the most common indicators shown in Table 4.2 and Appendix 5, including those devised by Blaxter, Poland and Curran (2001), Grootaert and van Bastelaer (2001), Boudreau (2007) and Berge *et al* (2009). The one I considered most useful for my study was the UK Framework for Social Capital Measurement framework (Harper and Kelly, 2003). While this particular framework was developed in the UK where conditions are very different from those obtaining in Malawi, in my view it could be reasonably adapted to my study context. What I particularly liked about this framework is that it was developed by a multi-disciplinary team of researchers, drawing on a broad spectrum of social capital research (including that of Blaxter *et al* (2001)) and had been tested in the field. It succinctly identifies five important dimensions of social capital which can be investigated in the field through various indicators: i) social participation, ii) social networks and social support networks, iii) reciprocity and trust (shared norms and values),¹¹ iv) civic participation (co-operation), and v) residents' views of the local area (also involving shared norms and values). Harper and Kelly (2003:6) state that these five dimensions are both sources of social capital (for example, family relationships) and the outcomes of social capital (for example, voluntary work that benefits the wider community).

The indicators used to measure each of the dimensions are both objective and subjective, given that social capital covers both behaviour and attitudes. Within the framework, social participation refers to “involvement in and volunteering for organised groups such as clubs, churches and organisations” while civic participation “refers to individual involvement in local and national affairs, and perceptions of one’s ability to influence them” (Harper and Kelly, 2003: 6). Social networks and social support concern “the nature and quality of one’s relationships with family, friends and other contacts”, in which “the number and types of exchanges among members within the network, and the shared identities that develop” are important for the degree of support an individual can access in times of need. The reciprocity and trust dimension of the framework assesses “the amount of trust individuals have in others, both those they know and those they do not know, as well as the levels of trust that exist in formal institutions” (Harper and Kelly, 2003: 6). Reciprocity also assesses people's willingness to co-operate with others for mutual benefit.

In adapting this framework for my study, I ended up combining dimensions (i) and (iv) because of the convergence of social and civic issues in my study context. I also dropped dimension (v) as a distinct

¹¹ Note that in the case of “trust” there is an on-going debate in the literature as to whether it should be seen as an outcome or a source of social capital (Haynes, 2009).

category because the issues that it covered in the UK context (for example, fear of crime) were not entirely applicable within the context of Mphunga.

Table 4-2: Assessing social capital in Mphunga Group Village

Dimension	Examples of indicators
1. Degree of social and civic participation	# Number of cultural and social groups involved in and nature, frequency and extent of involvement (e.g. membership of and/or leadership roles in local clubs, farmers' groups, religious groups etc.) # Perception of ability to influence events # How well informed about local/national affairs # Contact with public officials and political representatives # Propensity to vote in local elections
2. Extent of social networks and social support networks	# Availability of relatives and/or close friends living nearby # Frequency of interaction with relatives/friends/neighbours # Participation in labour pools and other voluntary community/group development activities # Satisfaction with quality of life
3. Levels of reciprocity and trust	# Trust in family, friends & neighbours # Trust in people who are not close to one # Confidence in local institutions # Provision of voluntary assistance to those in need # Receipt of voluntary assistance if in need # Perception of shared values, norms and culture

Source: Adapted from Harper and Kelly, 2003

My final selection of dimensions and the indicators that could be used to assess them in the field are summarised in Table 4-2 above. Here what is important to note is the way this framework gives content to the otherwise rather abstract notion of social capital and embeds it in everyday life.

4.3 Research methods

4.3.1 Observation (including participant observation)

Observation has been a hallmark of both sociological and anthropological studies for many years (Kawulich, 2005). In this method the researcher becomes a key instrument for data collection by closely but as unobtrusively as possible noting as an individual observer what people do, say and how they interact and function in their everyday locations. In participant observation the researcher immerses him/herself as a participant in the activities being observed. Mack, Woodson, Macqueen, Guest and Namey (2011:13) describe participant observation as “a qualitative method with roots in traditional ethnographic research, whose objective is to help researchers learn the perspectives held by study

populations.” One of the challenges of this method, however, is recognising that those being observed may change their behaviour when they know that they are under observation.

Observing the ethical and practical considerations such as informed consent, I used participant and non-participant observation to collect data on Mphunga farmers social and farming activities and their relationships with each other in their everyday interactions in different settings. Over time, as farmers became more familiar with me, they opened up more and began to view me as a supporter in their livelihood challenges. By observing farmers in different settings, I also explored how they relate and support one another during special events such as funerals, work parties, initiation ceremonies and weddings, as well as times of crisis, such as during a flood or illness. I observed that formal meetings usually start with prayers from both Islam and Christian faiths, showing the farmers’ faith and belief practice and how they give equal treatment to the two dominant faith systems.

Observation was an on-going research method, particularly from October 2012 when the farmers began to prepare for summer through to April-June 2013 when I was stationed among them, and then made follow up visits between July and October 2013. At the peak of summer (from late December 2011 to early March 2012) when flash floods were prone, I visited the study site seven times upon learning of impending floods and on four occasions I spent several days with both officials from local NGOs and Salima District Assembly as well as farmers observing the flood rescue operations, aid relief and impacts of the floods.

4.3.2 Participatory action research (PAR) techniques

This was an important part of my research which I conducted with the members of my 56-strong Core Reference Group. PAR refers to “a tool-kit of various techniques used to understand and interpret a diverse range of activities undertaken in the field” (Taylor, 1999:33) which I was familiar with from my professional work in community-based natural resource management, a domain in which many of the techniques have been developed and tested over time. The tool-kit of techniques that I employed for my study included village mapping and transect walks, plotting farmers’ daily time-use schedules and seasonal calendar activities and developing historical timelines for major developments. The Core Reference Group also helped me develop wealth and status markers within Mphunga Group Village (Appendix 5) and rank households within their wealth cluster for purposes of my household survey.

Village mapping and transect walks

With the 56 members of the Core Reference Group established earlier, I began the PAR process with a village mapping exercise to establish the extent of Mphunga Group Village, its key features and

boundaries. (See Figures 4-1 and 4-2). My respondents divided themselves into two groups, one male and the other female, in order to manage gendered tensions. Each group selected a volunteer to lead the mapping process. Once they had finished producing their own map, both groups had an opportunity to comment on each other's map and then integrate the two maps to produce a final, consolidated map highlighting key features, for example village boundaries, footpaths, crop fields, gardens, graveyards, the mosque, old well sites and boreholes. (See Figure 4-3).

Figure 0-1: Women's village mapping group



Photo: M. Saruchera, 2 April 2013

Figure 0-2: Men's village mapping group



Photo: M. Saruchera, 2 April 2013

Figure 0-3: Consolidated village map, integrating both men's and women's initial maps

Photo: M. Saruchera, 2 April 2013

The above map then provided a basis for discussions about the impacts of floods, droughts and other environmental changes on the farmers' livelihoods over time. The village mapping exercise reminded respondents about some former landmarks such as the sites of a school and church that had been destroyed by floods and almost forgotten by the farmers. Afterwards a group of 11 women and eight men volunteered to take me on two transect walks around the village, the first from the eastern to the western boundary and the second from the northern to the southern boundary. The existence of features identified during the earlier mapping exercises were confirmed during these walks, including old crop fields, some abandoned housing, a school and church buildings, a graveyard and old borehole sites. The village mapping and transect walks were particularly useful in deepening my insight into dynamics around boundaries between wetland gardens, homesteads and cropping fields, as they revealed that on some issues farmers could not agree among themselves

Time-use schedules and seasonal calendars

The time-use schedule and seasonal calendar of activities were developed in conversation with the Core Reference Group discussions and further validated through observation and my key informant interviews and life histories. While climate and season dictate common patterns in agricultural activity across farmer households, factors such as family size, age, income, gender, personal and household need, and other work commitments determine individual farmers' decisions around what or how much they do when. For example, school-going children from poorer households often miss school to help

their parents in undertaking *ganyu* for income or assisting with household work during the farming season.

Wealth ranking

In preparing for the household survey, I revisited the defined four household wealth clusters (namely: the very poor, the poor, the better-off and the rich) identified by the Core Reference Group members, within which all households could then be ranked. A wealth cluster refers to a set of households that employ similar strategies for obtaining food and income, live at roughly the same level and have similar capacities to cope with hazards such as floods and droughts (Boudreau, 2008), while wealth ranking refers to the location of an individual or household within the clusters and relative to other individuals and/or households. In this process I was guided by wealth clustering exercises from previous research in Malawi (MVAC/SADC FANR, 2005; Boudreau, 2007; Berge, Kambewa, Khaila, Munthali and Wiig, 2009), which were developed by international agencies for assessing the impact of shocks on livelihoods. Wealth clustering is widely used as a standard methodology by various national governments and development agencies in a range of development contexts (MVAC/SADC FANR, 2005:2). Key to the exercise is that the meaning of poor, better-off etc. is defined by local people and not imposed by outsiders such as myself (Boudreau, 2008).

Following a discussion of the meaning of poverty in their context, the Core Reference Group helped me categorise all 1,026 households in Mphunga Group Village in terms of their wealth ranking, using a list of households that was obtained from the Village Development Committee. The representatives from each of Mphunga's 13 villages (comprising both men and women) ranked the households in their individual villages. The exercise was participatory, with interesting arguments among the farmers regarding the borders between the poor and better-off wealth clusters. Initially we worked with four wealth categories, namely very poor (*osauka kwambiri*), poor (*osauka*), better-off (*opata* or *opezako*) and rich (*olemera*)¹² but subsequently I was advised to drop the rich category because, I was told, no-one in the group village could be regarded as rich. However, because I came across one farmer who identified himself to me as rich, and other local informants agreed with his self-designation, I decided to retain this as an outlier category. This "rich" farmer was not included in my household survey but he was one of my life history respondents. The final outcome of this process showed a little over one third of households in my survey sample (3 per cent) fell into the locally defined "very poor" category, one third (33 per cent) fell into the "better off" category and a little under one third (31 per cent) were

¹² The italicised words are the Chichewa equivalent for the respective wealth category groups identified by the farmers

regarded as “poor.” This meant that some two thirds of all the Mphunga households are considered poor by their own standards.

The participatory wealth clustering and ranking exercise was conducted in the local language and the data recorded on a wall board in the community hall where the exercise was undertaken. Neither the number of wealth clusters nor the number of households in each rank were pre-determined in advance, although it was an initial requirement that a “rich” category had to be generated during the process. The exercise identified various attributes and assets not simply in terms of their utilitarian significance for livelihoods but also their symbolic significance as markers of status (see Appendix 5.) It was most useful in understanding how farmers themselves define wealth and which livelihood assets or capitals are deemed most significant.

One drawback associated with this approach is that “people’s perceptions and criteria could differ from one village to the next, making comparisons and generalisation difficult” (Tefera, Perret and Kirsten, 2004:137). To avoid this potential drawback, I worked with my Core Reference Group, which represented all the villages falling under Mphunga Group Village, and also tested the validity of the identified wealth clusters through the household survey. Just five of the 129 surveyed farmers did not agree with how they had been categorised and were reclassified to reflect their own assessment.

4.3.3 Household survey

The household survey involved using a structured questionnaire (see Appendix 6) with a sample of 129 households that were selected from the 1,026 households using random systematic sampling. I developed and pre-tested the questionnaire to collect data on socio-economic and demographic characteristics of the farming households, as well as asset ownership, farming practices, constraints around crop production, and coping strategies. Interviews were conducted in the local language by my two research assistants in my presence. The research assistants received training from me in December 2012 and January 2013 and data entry was validated through data cleaning procedures. I derived my sampling frame of 1,026 households from the Village Development Committee’s records which I corroborated against a health survey that had been compiled by Mtchoka Hospital in January 2013. Using the pre-established wealth cluster categorisation of the entire Group Village’s household population discussed above, I used a combination of probability sampling techniques to ensure that my survey sample would be representative of the wealth ranking of households and proportional to the population size of each village. My sampling frame is shown in Table 4.3 below.

Table 0-1: Household survey sampling frame and sample size¹³

Village Name	Number of households	Total population	Females	Males	Sample size (N)	Per cent
Chadza	76	351	201	150	8	6.2
Chikumba	75	318	202	116	9	7.0
Chimphonde	38	180	108	72	6	4.7
Chinyama	183	814	510	304	22	17.1
Kachala	40	226	126	100	6	4.7
Kambudzi	30	140	81	59	7	5.4
Kapanda	20	80	45	35	5	3.9
Karonga	55	360	240	120	6	4.7
Kasiya	40	140	80	60	6	4.7
Mabwela	68	260	140	120	9	7.0
Mkwinda	52	210	120	90	8	6.2
Mnima	23	124	70	54	3	2.4
Mphunga	326	1380	700	680	34	26.4
Totals	1,026	4,583	2,623	1,960	129	100

In determining the sample size for my study, I sought expert advice from an experienced statistician from the Bunda College of Agriculture's Department of Agricultural Economics in Lilongwe. He recommended that I use the proportional to population size (PPS) sampling method and Edriss's (2003) statistical formula in order to determine statistically the ideal total sample size for the household survey and helped me apply the formula and calculate the result. According to Edriss (2003:46), "the proportion to population size sampling method is self-weighting and therefore it simplifies the analysis of data and improves representativeness of the sample."

To establish my study's sample size, I used the proportional to population size (PPS) sampling technique that was recommended by the statistician that I consulted. The technique takes population size into account in order to ensure representation and avoids over or under-representation, which could have implications for the reliability of my findings. In determining the sample size for each village using the proportional to population size technique I utilised the following formula:

$$\frac{x}{N} = n$$

13 (i) n=sample size per village, and N=total sample size=129 (ii).The sample size was computed based on the latest population update from the Mphunga Group Village health survey (iii). At the time of undertaking the research, seven of the villages were informal, hence the village heads did not receive a monthly allowance. However, four more villages have since been formalised after the fieldwork.

Where x = number of households per village, N = total number of households/total population size across Mphunga Group Village, and n = total sample size. On the basis of this proportion to population size technique, the sample size for each of the 13 villages was proportionally determined as shown in the N column in Table 4.3 above, resulting in a total sample size of 129 households.

The next step was to distribute the 1,026 households across the three wealth clusters that I had established with my core group of 56 respondents during the PAR exercise. Within the wealth clusters I organised the 1,026 households by alphabetic list, using their family names, according to their respective villages. Thereafter, I then proportionally distributed the 13 villages' sample sizes (N) shown earlier in Table 4.3 above, across the three wealth clusters within each village. For example, Chinyama village's sample size of 22 was proportionally distributed across its three wealth clusters. In selecting the 129 households within each village and wealth cluster for the survey, I used the alphabetic list, starting from the top of the list.

Upon arrival at a listed household, I asked my research assistants to interview the head of the household who was present at the time, and in the absence of the person identified as the head for that household we proceeded to the next household on my list. We returned later to the households whose heads, and, in the event of not finding them at home for the second time, we then interviewed the most senior adults available. As a result, my respondents turned out to be heavily skewed towards women, with a total of 102 of my 129 respondents (79 per cent) being women, many of them elderly. In part this preponderance reflects that the population of Mphunga Group Village is female-dominated. At the same time, elderly women who were spared the hard work of winter farming and left at home to look after the homestead and young children were more likely to be available for interviews.

Given that the focus of my survey was on the household rather than the individual, I did not consider this gender weighting a major problem. In the context of my study, a key distinction emerged between young farmers, that is those aged 40 years and below, and older farmers (those aged 41 years and older), encompassing both middle-aged and elderly farmers. In terms of this particular distinction, young farmers constituted a little over a third (36 per cent) of my survey sample and older farmers just under two-thirds (64 per cent).

Two members of the Village's Development Committee were assigned by the Group Village Head to accompany us during the survey for purposes of locating the listed households and introduce us to the respondent family. The escorts did not participate in the interviews but left after performing the introductions.

4.3.4 Semi-structured interviews with key informants

Open-ended, semi-structured interviewing is widely recognised as a valuable research method. It allows respondents to talk about their experiences and communicate their attitudes and beliefs in their own words (Mason, 2004 and Newton, 2010). It also enables the researcher to explore specific issues in depth as well as obtain particular information on the respondents and their circumstances.

I conducted semi-structured interviews with a total of 38 key informants: 17 selected from various community structures, nine from local NGOs and International Organisations that were active in the village, two from academic research institutions and 10 officials from government departments in Salima District (see Appendix 7). My key informant interviews focused mainly on general livelihood issues and challenges, agricultural productivity and markets, policy and governance, and climate change awareness among the farmers, with the precise focus varying, depending on an informant's position and role. (See Appendix 8 for the semi-structured interview schedule). The interviews were conducted mainly in English, sometimes mixed with a bit of Chichewa, except in the case of four farmers who were members of community-based organisations and were not conversant in English language. In these instances, the research assistants helped with translations of the interviews into Chichewa.

4.3.5 Life histories

The life history method involves the collection and interpretation of individual oral testimonies in order to understand the outlook and experiences of the individual as his or her life has unfolded over time and what they view as important in that personal history. By their very nature, life histories are relational. They deliver powerful insights by linking up macro and micro processes (Kothari and Hulme, 2004). However, like other approaches, life histories confront researchers with a set of challenges. Respondents tend to be selective in their recollection of the past and to emphasise particular experiences more than others. A more practical challenge for the interviewer is that respondents do not necessarily narrate their life histories as a chronological progression of events but, rather, “shift [ed] between narrating and interpreting their stories” (Portelli, 1991: 51). As Portelli (1991) has also cautioned, my respondents tended to romanticise the past, describing life before they were displaced by floods from the old Mphunga Group Village site with a deep sense of nostalgia. That said, the focus on personal interpretation and meaning enabled me to gain a deeper understanding of the cultural context that shaped my respondents' experiences, as they shared often deeply personal issues and to explore the significance of social capital in how they negotiated or struggled with various challenges, including extreme weather events.

I selected 10 farmers (Appendix 3) for detailed life histories, which I collected between April and June 2013 using the social capital measurement set of questions in the research instrument shown in Appendix 4. These farmers were selected from a total of 17 volunteers who were members of my Core Reference Group. In making my selection I aimed to ensure a reasonable gender and age mix, as well as a spectrum of wealth ranking. I held several interview sessions with each of my selected respondents in different community settings (at their homes and also in the fields), depending on their daily schedules.

4.3.6 Documentary analysis

Document analysis is “a form of qualitative research in which documents are interpreted by the researcher to give voice and meaning around an assessment topic” (Glen, 2009: 27). I analysed a variety of project documents and climate change policy instruments, including the Malawi Climate Adaptation for Rural Livelihoods and Agriculture Project documents, and the Malawi Vulnerability Assessments Committee (MVAC) documents. Official records and datasets from the Malawi Department of Climate Change and Meteorological Services and the National Statistical Office (NSO), and reports from Salima District Assembly, the Disaster and Risk Management Department and videos from different NGOs were also analysed. The Department of Climate Change and Meteorological Services (Blantyre Office) made available some rainfall and temperature datasets from April 1953 to December 2011, including analyses of Salima District’s rainfall pattern; national temperature and climate variability and evidence of climate change. I reviewed official records from the Department of Disaster Management Affairs for the period 1981-2012, on the impacts of natural disaster occurrences and the relief provided, including Salima District. However, the records were incomplete, with gaps in some of the years which made verification and comparison difficult.

The local Mtchoka Hospital’s community health survey report (of January 2013) provided me with the most recent population data for all 13 villages constituting Mphunga Group Village. The Salima District Agricultural Development Office provided me with panel datasets for the period 2000-2012, showing an overview of agricultural performance by crop, per hectare, by yield in kilograms per hectare and total production trends in metric tonnes. The MVAC documents provided me with comparable data on Salima District’s population, agricultural production, seasonal calendar, rainfall patterns, market trends, chronic hazards and farmers’ response strategies for the period 2008–2013. The datasets that I reviewed generally matched with the Salima District Assembly’s socio-economic profile reports and the empirical data generated from the field.

4.4 Data analysis

Analysing lots of data collected through a mixed-methods research design proved to be taxing. It required me to be conversant with both quantitative and qualitative methods of data analysis and to integrate the results in a coherent and meaningful way. Anderson (2003) states that the process of analysing qualitative data is an iterative and reflexive one, and it commences when one is collecting the data rather than afterwards. Throughout the fieldwork phase, I organised my field notes around key themes and emerging concepts and, throughout the research process, endeavoured to reflect on it and thereby enter into “a dialogue” (Anderson, 2003) with it and the ideas that were taking shape during this phase. For the analysis of my household survey I used the tool Social Package for Social Scientists (SPSS), version 16, which enabled me to produce descriptive statistics, tables and figures as well as cross tabulations across a wide range of data themes. For the analysis of my qualitative data I opted to work with both Microsoft Excel and QSR NVivo as tools to help me synthesise my extensive primary data, create and refine categories and trace linkages between some concepts. The NVivo program enabled me to examine the coded text “in context” (Schutt, 2011) embedded in its place in the original document. It allowed me to revise codes where needed, assign multiple codes to text segments and link my own comments to the text segments. I received training in the use of both SPSS-version 16 and QSR NVivo from an expert.

4.5 Research ethics

I conducted my study within the policy framework for ethical research of the University of Stellenbosch that aims to reduce the potential risk of harm to respondents due to participating in a given study and ensure that the principles of anonymity and confidentiality are respected in the study. These include informing the research participants about the main aims of the research and procedures; potential risks, discomforts and benefits of participating in the study, if any, and securing participants’ written or oral consent to participate in the study. (See Appendix 10 for a copy of the “informed consent” letter that I used).

I asked all respondents to grant their consent in writing, by way of signing my informed consent form if they agreed to participate in the study. This was after explaining the respondents’ rights to not participate in the study if they chose to, using one of my interpreters to ensure their understanding of what was being communicated. For those who could neither read nor write, I requested them to appoint someone of their choice to sign the consent form on their behalf. Informed consent recognised the study participants’ need to ask and know about the procedure of the study before they participated in it.

Respondents who participated in both key informant interviews and group discussions had to give separate informed consent for each of the activities. I made it clear to the respondents that there would be no payment or any direct material benefits from participating in the study. With the exception of those who consented for their names or initials to be listed I decided not to use the real names of respondents, but identify them through pseudonyms names, numbers and initials.

Beyond the more formal concerns with informed consent and protecting the privacy of respondents, there are further ethical questions about asking poor farmers to sacrifice their valuable time without any direct material benefit, remuneration or guaranteed future benefit. In this process my identity and role as a researcher was a matter of on-going reflection and self-enquiry. I continue to be nagged by my field experience and the silent internal debate on whether, as a researcher, I was, ultimately, being self-serving and how relevant my research enterprise was for the farmers who exposed their lives to me. At the same time, I am deeply aware of the contribution that social research can make towards policy, knowledge, awareness creation and practice, even if it is often hard to measure that directly.

Gokah (2006: 70) poses the question, “Is it ethical or hypocritical for a researcher to turn a blind eye on urgent needs within her/his immediate ability to help?” This issue was particularly difficult for me to manage after one of my respondents called me for assistance with food and school fees for his children, almost two years after my fieldwork had ended. The close contact and deep relationship that I developed with the farmers to enable myself to blend in with them in order to operationalise the actor-oriented approach during the study was partly responsible for the ethical dilemma that then faced. From a formal research ethics perspective, I was not expected to help him and I ended up referring him to some NGOs that I had met at the research site. However, he continued to call me until finally I did provide some help, and then persisted with this approach until eventually I stopped taking his telephone calls. This experience left me feeling guilty and selfish while at the same time I also felt abused by this individual’s constant demands for help. I could not help wondering why this particular person was calling me so persistently and how the rest of the farmers were coping. These are deeply moral and troubling issues that go beyond what formal protocols on research ethics can determine, and perhaps the final decision on how to respond to them has to rest with the researcher concerned.

I also consider my research to be primarily extractive for purposes of my scholarship, given the lengthy periods of time I spent with the farmers and the close relationships formed during the study. The participatory action research techniques that I employed resulted in some of the study respondents embedding in some aspects of my fieldwork, thus posing an ethical dilemma that left me with a sense of exploitation when I compare what I stood to benefit from the research in comparison to them.

4.6 Limitations

A key limitation of my study is that I was not able to spend as extended a period in the field as I had initially intended. A number of factors were involved, including financial constraints as a self-funded student, which limited my ability to follow up on my fieldwork during what turned out to be a more extended writing-up phase than I had originally intended due to a number of factors of a personal nature beyond my control. This means that some years have passed between my core fieldwork, which took place in 2013, and the final appearance of my dissertation. I have, however, kept in touch with the literature and key debates within the climate change and development aid sector in Malawi during this time and I am confident that the dynamics that I explore in this dissertation have not significantly changed and that my findings regarding my actors' livelihood strategies, social capital and interaction with experts remain reasonably robust.

A different challenge has been to manage the very large amount of data that I collected through my mixed-methods research design, which also made the process of data analysis lengthy and challenging. As already indicated, I made a concerted effort to organise and track my field data meticulously and to make use of software to assist me with my analysis. Interesting definitional and operational challenges also arose regarding the concepts of poverty, social capital, wealth and household during my discussions with respondents. The constant tensions between theory and practice called for on-going interrogation and understanding of these concepts. This was particularly challenging in situations where the researcher and respondents needed to agree on the definition of concepts and then apply them. The differences between theoretical understanding and practical application were highlighted in such circumstances. As a result, the boundaries between the wealth clusters that were identified were not always clearly distinguishable, most notably in relation to how to differentiate between the well-off and the rich cluster, as already discussed above. This, however, reflects the fluid and contextual nature of how wealth is understood and status is accorded on the ground.

Defining a household for certain field exercises also proved rather complex, because of the extended nature of families. The utility of households as a unit of analysis for empirical investigation into livelihoods needed critical interrogation by exploring the conventional definitions and highlighting their limitations. In the light of these limitations, it is important to note that in the context of Malawi, the role of non-resident family or household members in contributing to the well-being of the resident members is critical. There are many households with members working away in urban centres or abroad and whose livelihoods 'straddle' both rural and urban areas. The issue of incentivising the core respondents constantly nagged me as I wondered whether the farmers would have participated in my study without the soft drink and bread rolls that I gave them, which formed part of my original negotiations of access as mentioned above. To a lesser extent there was a gender dimension which limited my access of female

respondents due to local customs and gendered spaces that made it difficult for a male to enter. My female research assistant entered most of these spaces alone and that constrained me from making observations during the interviews and discussions that she held with the female study respondents.

The lack of reliable data on farmers' land sizes and gaps in the datasets on flood victims provided by the Department of Disaster Management Affairs was also concerning. A related issue arising from my field research was that several respondents, particularly women, did not know the size of their landholdings. This could be attributed to lack of written records and low literacy levels among the farmers. Unless probed further, rented cropland (both that rented in and rented out by the farmers) was not included when respondents gave their landholding sizes, an indication of what the farmers understand by land ownership. With regards to housing structures, the building materials used by some of the farmers were inconsistent with the wealth ranking profiles and characteristics that were given by the core reference group participants. It emerged that the actual socio-economic standing of households is often hidden and difficult for outsiders to determine, and that this is done to avoid being left out in the event of any relief aid or material assistance being extended by donors, in itself a revealing finding which I discuss further in Chapter 6.

Chapter 5: Overview of Malawi's social, economic and environmental context

This chapter provides a general overview of the development context in Malawi before turning to the issue of climate change and how the country is attempting to engage with this in terms of its national policy and institutional responses as well as the responses of smallholder farmers on the ground, as reported in other studies. This overview is considered essential for understanding the broader social, economic and environmental context within which smallholder farmers in Mphunga are engaging with the issue of climate change in their lives. The elements of the sustainable livelihoods framework, namely, conditions and trends, livelihood assets/capitals, the institutional arrangements and the range of livelihood strategies available to farmers, have been drawn on in the structuring of this chapter. Sections 1 – 5 cover: i) geography, natural resources and climate, ii) demography and gender relations, iii) politics, governance and administration, iv) the economy and development policy and v) land tenure and administration. Section 6 provides an overview of climate change in Malawi.

5.1 Geography, natural resources and climate

Malawi is a small, land-locked country that is some 910 km long and between 60 to 161 km wide (Kabuye and Mhango, 2006:1). It shares its national borders with Mozambique in the south and east; Tanzania in the north and north-east, and Zambia in the west. Formerly known as Nyasaland, the country was declared a British Protectorate in 1891. Between 1953 and 1963 it formed part of the Rhodesia and Nyasaland Federation that also comprised present-day Zambia and Zimbabwe. It attained its independence in 1964 (Government of Malawi, 2014).

The country has a total surface area of 118,480 square kilometres, 80 per cent of which is made up of land, with the remaining 20 per cent covered by water (Kabuye and Mhango, 2006:1). Malawi's extensive network of lakes, rivers, streams, and groundwater reservoirs are major natural resources that underpin a range of economic activities, including tourism, the fishing industry, navigation, and agriculture. Lake Malawi is by far the most important water body and the third largest lake in Africa. Its main river outlet is the Shire River, which crosses the Mozambique-Malawi border and runs into the Zambezi River. Of concern, however, is that the country's surface and ground water resources are being degraded as a result of pollution from hazardous waste and agro-chemical run-off, the drying up of some formerly perennial rivers, and siltation as a result of soil erosion linked to deforestation and the escalating over-exploitation of wetlands. In this regard, Malawi's Environmental Affairs Department (2010b) identifies climate change and the combination of both constant droughts and frequent floods, along with inadequate maintenance of aging water infrastructure, as a very serious threat to the

country's water resources. Population growth is also leading to an increased demand for water in both urban and rural areas (Ministry of Economic Planning and Development, 2012a: 83).

Malawi is endowed with fertile soils that are excellent for crop farming (Environmental Affairs Department, 2010b:6). A crucial source of livelihoods for most Malawians, land is regarded as a source of not only national wealth but also cultural and political identity. The country is also well endowed with forest resources in the form of natural woodland, forestry plantations and woodlots. State (protected) forests on public land cover about two million hectares, followed by customary forests on common-access land, village forests under traditional authorities, and private forests under leasehold or freehold tenure (Environmental Affairs Department, 2008). While the extent of these resources varies from district to district, they play an important role in meeting basic needs for fuel, food (for example, fruits, honey, mushrooms) and animal fodder, as well as being a source of employment in the forestry sector (Environmental Affairs Department, 2010a). However, they face major threats from drought, fires, land degradation and loss of soil fertility, linked to human over-utilisation of these resources and “resulting in one of the major environmental challenges for Malawi” (Environmental Affairs Department, 2010b:48). In 2010, the Environmental Affairs Department (2010a) reported that land under forest cover had declined from some 41 per cent in 1990 to under 30 per cent, largely due to unsustainable use.

While the country makes use of a number of energy resources, “biomass makes up most of the total energy use followed by charcoal, firewood and crop residues respectively”, (Environmental Affairs Department, 2010b:48). The country has been faced with recurring power shortages and inadequate capacity to generate electricity, resulting in frequent blackouts that undermine economic productivity, especially in the tiny mining and manufacturing sectors. In 2010 the Environmental Affairs Department (2010b) noted that the uptake of renewable energy technologies such as solar, biogas and wind was low due to the high initial costs and lack of appropriate institutional delivery mechanisms.

In terms of climate, the country has a tropical continental climate that is strongly influenced by the presence of Lake Malawi. Although there are numerous micro-climates across the Southern and Northern regions of the country, the main rainy season generally runs from November until April with the main dry season from May to October. According to the Environmental Affairs Department (2010a:5): “The rainfall records across Malawi show high inter and intra-seasonal variability, and the highest temperatures occur towards the end of October and early November while the lowest occur in June and July.” In 2009 Oxfam International (2009: 9) noted that “in the last two decades the timing of seasons has been remarkably inconsistent and less predictable, with inter-annual variability and adverse impacts on climate-dependant activities such as agriculture.”

As already noted in Chapter 1 and discussed further in section 5.5 below, various studies confirm that the country's climate is indeed changing (Oxfam, 2009; Ziervogel *et al*, 2008; Stringer *et al*, 2010; Mwenelupembe, 2011; Action Aid, 2012). Frequent extreme weather events and noticeable shifts in the climate pattern and long-term changes in rainfall and temperature patterns have been recorded in many areas (Ministry of Economic Planning and Development, 2012a: 20). For example, the onset of the summer season has shifted from late October to early December, and "floods have spread from the six traditionally prone districts before 2001 to more than 22 districts after 2007" (Environmental Affairs Department, 2010b: 218). Drought has also become more common. In 2012, Hara (2012: 10) noted how Malawi was struggling to cope with the effects of climate change and how this was exacerbating the already poor livelihoods situation of most smallholder farmers. My study confirms that these challenges have not lessened since Hara's study.

5.2 Demography and gender relations

Malawi's total population was estimated at 15 million in 2015 (Grist, 2015). With a population density averaging some 149 persons per km² (Ricker-Gilbert, Jumbe and Chamberline, 2014), it is among the most densely populated countries in the world (Environmental Affairs Department, 2010a:4). The country also has a high dependency ratio, with approximately 54 per cent of the population made up of youth under the age of 18 years, and children aged between 0 - 9 years making up a third of the total population (Ricker-Gilbert *et al*, 2014: 115). Males make up 49 per cent of the population while females make up 51 per cent, the imbalance being indicative of the high levels of migration by especially adult men to other parts of southern Africa, in search of employment. The annual population growth rate is about 3.06 per cent and national life expectancy is 51.7 years, with 52.5 years for women and 50.9 years for men in 2019 (United Nations Department of Economic and Social Affairs, 2019).

Malawi is a multi-ethnic society. Its people are mostly "of Bantu origin, made up of several ethnic groups including Chewa, Yao, Tumbuka, Lhomwe, Sena, Tonga, Ngoni, Ngonde, Asian and European nationals" (Kwengwere, 2011: 125). The few thousand people of European and Asian descent live mainly in the cities. The Chewa (found predominantly in the Central Region where my study site is located) constitute the largest ethnic group. While Malawi's distinctive languages are found across the country's different regions, according to Kwengwere (2011:125. "The Yao, Sena and Lhomwe live mainly in the southern region while the Tumbuka, Ngoni and Tonga live in the Northern region."

Custom remains a significant influence in daily life, especially in rural areas where the social and kinship networks within which farmers are embedded play a key role in "fulfilling and sustaining" the various income portfolios within the household; these are thus significant networks for understanding climate change adaptation (Bryceson and Fonseca, 2005:3). By way of illustration, many of my

respondents cited “cultural reasons” for resisting to be relocated by the Salima District Assembly from their original homes in Mphunga Group Village to some other location, despite them suffering continual losses from exposure to annual floods. The ethnic groups from the central and southern regions are generally polygamous, with strong matrilineal kinship and inheritance institutions, while in the northern parts of the country patrilineal clans and inheritance systems are more common (Kwengwere, 2011). Despite the significance of matrilineal institutions and cultural values, Malawi is considered a predominantly patriarchal society, reflecting male dominance over women (Bryceson and Fonseca, 2005). These authors note that patriarchal cultural norms and practices around property rights, including wife inheritance, tend to disadvantage women overall and entrench their weakened position in society. Furthermore, “state policies are also still gender-biased thereby placing limits on the economic opportunities of female-headed households or access to credit and extension services” (Kwengwere, 2011: 150).

According to Kwengwere (2011), girls and women perform most of the farm and household work, a reflection of the gender inequality between men and women. The author further states that men dominate both informal and formal economic activities as well as educational opportunities which effectively reduces the meaningful livelihood opportunities and alternatives available to women. “The literacy rate for women is far lower than that of men, and the combined enrolment in primary, secondary and tertiary education is lower than that of males, contributing to the entrenchment of poverty” (Ministry of Economic Planning and Development, 2012a: 52). About 97 per cent of Malawian women are involved in subsistence farming, water and firewood collection, and 70 per cent of them are responsible for the production of (but not necessarily the control over) cash crops (Environmental Affairs Department, 2010a: 11).

Gender norms and traditions prescribe a model of socially acceptable behaviour within households. Bernier, Franks, Kristjanson, Neufeldt, Otzelberger and Foster (2013) note that men are invariably heads of households, charged with decision-making authority. They make decisions on which key activities are adopted and how the benefits from these activities are distributed. In comparison to men, the social prescriptions determining what is permissible for women limit the livelihood options available to them. For example, in Mphunga Group Village it is frowned upon for local women to take up employment away from the village. However, as my study findings show, these attitudes are slowly changing, with younger women now leaving the village and even the country to seek better livelihood opportunities elsewhere.

5.3 Politics, governance and administration

5.3.1 Constitutional dispensation

Malawi currently has a multi-party state system, after having gone through five different political administrations since independence in 1964. The country was characterised by a constitutional one-party system under the Malawi Congress Party regime from 1964 to 1994. This has been followed by a democratic dispensation, in which different parties have competed for a parliamentary majority. Under the Constitution, the President is chosen through elections every five years and then appoints a cabinet. Members of the National Assembly are also elected every five years. The Constitution provides for a judiciary system with Magisterial, High and Supreme courts. The Constitution recognises customary law as an important part of the country's legal system, with provision for two levels of customary law courts, that is, the Local Courts found largely in the rural areas, and an Appeals Local Court found in each district. Both of these customary courts are subordinate to the High Court where further appeals may be made (Government of Malawi, 2014).

5.3.2 Decentralisation policy and local administration

Malawi has a decentralisation policy which was enacted into law by the Local Government Act of 1998 (Ministry of Local Government and Rural Development, 2012) and is potentially significant for shaping climate change and adaptation responses, given that community-based action remains a crucial component of the local response mechanism (Ministry of Local Government and Rural Development, 2012:7). (See section 5.6 below). The decentralisation policy is aimed at devolving authority down to the district level and promoting popular participation in the development and governance of the country, by transferring responsibility for implementing policy to districts. While policy formulation, enforcement and inspectorate functions are retained by national line ministries and policy-making experts and technocrats (Ministry of Local Government and Rural Development, 2012:7), the local-level arrangements brought about by the decentralisation policy remain key structures for local development and governance.

The country is divided into three administrative regions: Northern, Central and Southern. The Northern Region has six districts, the Central Region has nine and the Southern Region has 13 (Kabuye and Mhango, 2006). (See Figure 1.2 in Chapter 1). Local government across the country's 28 districts is administered by officials who are appointed by the central government. "Each district is further divided into traditional authorities, which are ruled by chiefs" (Environmental Affairs Department, 2010a: 4). The village is the smallest administrative unit, under a traditional Village Head. A Group Village Head oversees a group of several villages. According to the Chief's Act (1967) of Malawi, a village is a

collection of adjacent homesteads with at least 30 people of Malawian origin. The Village Head is appointed by the Group Village Head to oversee the village's affairs and is entitled to a government monthly allowance. A group village is made up of 10 villages or more (Group Village Headman Mphunga, Interview, 2013).

At the local level the District Assembly is the highest policy-making structure responsible for development planning and promotion of infrastructural and socio-economic development (Environmental Affairs Department, 2010a:15). In principle, the District Assembly comprises representatives of community wards and special interest groups, traditional authorities, sub-traditional authorities and Members of Parliament (MPs); the District Commissioner is the Secretary of the Assembly. The Area Development Committee (ADC) and Area Executive Committee (AEC) serve at the Traditional Authority level. The ADC is a representative body of all the Village Development Committees (VDCs) falling under a particular traditional authority, while the AEC provides technical and advisory support to the ADC. The VDC is the principal institutional structure at the Group Village level, responsible for development planning and facilitation at the community level (Ministry of Local Government and Rural Development, 2012). It is made up of representatives from the different villages that make up a Group Village. Village Natural Resource Management Committees in Group Villages are tasked with resource and environmental management issues.

Malawi's decentralisation policy means that these district and village-level institutions are where smallholder farmers are most likely to interact with the different layers of local officials and external experts implementing policies and overseeing responses to climate change. Community-based institutions are where these different actors interface and where farmers' understandings of and response strategies to climate change issues come under expert scrutiny. However, "the effectiveness of the decentralised structures at district level and below are constrained by lack of adequate operational resources, lack of skills and knowledge capacity" (Ministry of Local Government and Rural Development, 2012: 13).

The traditional system of governance has been subject to political manipulation by both the colonial and post-colonial administrations. For this reason, traditional leadership is perceived by some community members to be generally corrupt and closed to democratic processes; this perspective was certainly highlighted in my research in my interaction with both key informants and my Core Reference Group. A 2007 study by Peters and Kambewa (2007) pointed to the collusion of traditional leadership with corrupt activities in Zomba District, such as sanctioning illegal land sales and receiving "gifts" or tokens of appreciation for bearing witness to such transactions. Such practices have adverse consequences for the rural poor struggling to make a living off the land.

5.4 Economy and development policy

5.4.1 Economic overview

As has already been made amply clear, poverty is widespread in Malawi in both urban and rural areas, with more than 60 per cent of the people in 2012 reported to be living in poverty (National Statistics Office (NSO), 2012). The Southern Region is the worst affected, followed by the Northern Region (NSO, 2012: 204). Low levels of human capital (education, skills, good health), natural capital (adequate fertile land), economic capital (savings, access to credit, economic assets) and social capital have all been implicated as drivers of poverty in the country (Byceson and Fonseca, 2005). In this context development aid from international donors plays a significant role in supporting state investment in health, agriculture, education and sanitation, with international donors providing “slightly below 50 per cent of national budget support” (Ministry of Economic Planning and Development, 2012b: 57).

Malawi’s economy comprises both a formal and an informal sector, with the formal sector accounting for a mere 20 per cent of the economy and operating mainly in the urban areas (Ministry of Economic Planning and Development, 2012). The informal economy is difficult to analyse because it is neither taxed nor monitored by any form of government, and, unlike the formal economy, its activities are not included in the calculations around the country’s gross national product (GNP) and gross domestic product (GDP). Nevertheless, it is widely recognised that this sector is vital for the livelihoods of the poor, and finding ways to integrate the informal and formal economies is a major policy challenge (Carr and Chen, 2001).

Land is central in Malawi’s economic growth and development strategy, with agriculture the mainstay of the economy (International Monetary Fund, 2017). While the country’s development efforts are touted as focused on rationalising the arrangements for land tenure towards inclusivity (World Bank, 2017), Malawi still faces major challenges in addressing colonial and post-independence land disparities, as discussed further below (section 5.5). The country’s current underdevelopment can be linked to its history of colonialism. In 2011 agriculture accounted for some 36 per cent of GDP and 90 per cent of foreign exchange earnings (mainly from tobacco, sugar and tea) while employing 90 per cent of the total labour force (with the rest shared between the tiny industrial and service sectors) (Kwengwere, 2011:124). As a social class smallholder farmers are “situated at the centre of Malawi’s political economy” (Grist, 2015: 9), growing food crops as well as producing some crops such as cotton, tobacco and nuts for the market. The estate sector tends to grow high-value cash crops for the export market, focusing on tobacco, coffee, tea, sugar and macadamia nuts.

Water is a strategic resource for Malawi's food security, energy supply and tourism and transportation sectors. Lake Malawi and other smaller lakes are major sources of animal protein, in the form of fish, for the people living along their shores. The lakes also support thousands of livelihoods in the fishing industry (including boat building, fish trading and net making). According to Kwengwere (2011), more than 300,000 Malawians depend directly on fish for food, and fishing accounts for close on four per cent of Malawi's GDP. Fishing villages are scattered along the shores of Lake Malawi where they also serve as tourist attractions. The lake is an important means of communication between the northern and southern regions of Malawi, "handling 40,000 tonnes of freight and 200,000 passengers across the lake and various islands on the lake per year" (Kwengwere, 2011: 124).

Yet despite the country's abundant water resources, agricultural productivity remains low. This is variously attributed to declining soil fertility, over-reliance on rain-fed agriculture, diminishing average land-holding sizes due to population pressure, and lack of farming inputs. As noted by the Ministry of Economic Planning and Development (2012a:19), "the dependency on agriculture renders the economy vulnerable to climatic shocks", making diversification into other sectors such as mining, energy, tourism and services an important policy objective.

5.4.2 Development policy framework

Malawi's aspirations around sustainable economic development are encapsulated in its "Vision 2020" document which "defines the overall policy framework which sets out Malawi's long-term development agenda that was adopted by the Government of Malawi in the year 2000" (Government of Malawi, 2014:6). The Malawi Growth and Development Strategy (MGDS) remains the over-arching development strategy responsible for translating the country's development goals into livelihood outcomes. The central aim of the MGDS is to promote economic growth and development, through strategic investments, and to provide basic social services, thereby setting the stage for Malawi to become a middle-income country (Government of Malawi, 2014). The second iteration of this strategy, MGDS II, which ran from 2011 to 2016, was the main reference point for policymakers, civil society and donors during the period of my fieldwork. It identified six thematic areas – sustainable economic growth; social development; social support and disaster risk management; infrastructure development; governance; gender and capacity development – from which were derived priority areas regarded as central to the achievement of sustainable economic growth in the country. In its original formulation the MGDS was closely aligned with the UN's Millennium Development Goals, which were subsequently rolled over in 2016 and replaced by the UN's reformulated Sustainable Development

Goals. Malawi is currently updating its MGDS framework and, in the process, realigning it with these UN goals.¹⁴

With regard to climate change, the MGDS acknowledges that Malawi is vulnerable to climate variations such as droughts, floods and temperature increases and that these are negatively affecting agriculture, natural resources and infrastructure, with far-reaching effects on the population's health (Ministry of Economic Planning and Development, 2012b). The Strategy highlights the need for improved systems around climate change monitoring, information and management, along with improved early warning systems for extreme weather events, and for strengthened education and public awareness programmes on natural resources and conservation (Ministry of Economic Planning and Development, 2012a: 29). The Vision 2020 policy framework envisages the promotion of education and awareness on climate change issues and the phasing out of technologies that emit greenhouse gasses. However, the Vision does not provide much detail on long-term priorities for adaptation and mitigation.

5.4.3 Agricultural extension services

Successive Malawian governments and a number of local NGOs have taken steps to provide agricultural extension services aimed at improving smallholder agricultural production. These services are intended to improve “farmers’ human capital through new farming knowledge, skills and the technologies passed on by policy, research and extension experts” (Kabuye and Mhango, 2006:1).

While traces of state support for agricultural extension services can be seen as far back as 1903, Kabuye and Mhango (2006) regard 1948/1949 as a turning point in the history of agricultural extension. This was when Malawi experienced one of its worst recorded droughts, accompanied by severe famine, which prompted the development of a coherent national extension system for the country. This system remains the key channel through which different development experts access smallholder farmers, to introduce new technologies intended to enhance human capital in Malawi's rural areas and improve livelihood strategies (Kabuye and Mhango, 2006). Issues targeted by these extension services include the area of land farmers allocate to certain crops, their land management practices, the seed varieties they use, their investment in irrigation and adaptation practices such as crop diversification. According to Kabuye and Mhango (2006:14), the methods most commonly used to reach farmers include “farmer training, mass media (radio and newspapers), individual visits and group methods (meetings, demonstrations, field days, agriculture shows and group discussions).”

¹⁴ Malawi began a consultation process for the review and development of MGDS III in 2017.

The extension services that are in place are aligned with the country's four administrative levels: traditional authority, district, regional and national levels. One large traditional authority area (or several small traditional authorities) forms an Extension Planning Area, while one or more districts form an Agricultural Development Division. Thus Mphunga Group Village falls under the Chipoka Extension Planning Area, in the Ndindi T/A. Of significance for this study, both government and the agricultural extension services offered by various NGOs serve as an important interface between farmers and climate change experts and are thus influential in informing farmers' understanding of the phenomenon of climate change and their responses thereto. Private seed companies also take advantage of the extension experts' contact with farmers to promote the new seed varieties and technologies that they are marketing.

5.5 Land tenure and administration

5.5.1 Land tenure reform

As the previous discussion has made clear, land is a primary but extremely constrained asset for the livelihoods of most Malawians. More than 89 per cent of the population live in rural areas and rely directly on subsistence agriculture for their livelihoods. However, according to the International Land Coalition (2015:7), over 50 per cent of rural households farm on an average of 1.1 hectares of land, while some 25 per cent of households have less than half a hectare for cultivation. Compounding constraints on land holdings inherited from the colonial era is the issue of population growth, which is placing extreme pressure on the available land.

Land tenure refers to the obligations and system of legal rights that govern the use, acquisition, holding and disposal of land (Nothale, 1986). In the precolonial era land was communally held and passed down from one generation to the other. Under British colonial rule, the people of Malawi went through a structured and systematic process of land dispossession. The objective behind this land dispossession was to create a surplus pool of labour for the colonists, through the alienation of the African population from their land. This was supported by the enforcement of various land-related taxes that forced African subsistence farmers to take up waged labour in order to pay the taxes. Prime land was allocated to a large-scale (estate), expatriate commercial farming sector, a pattern that largely persists to the present day, although members of the Malawian elite are now represented in the estate sector.

As a result of this history, until recently most of the country's land policies derived from the colonial period when all land was ceded to the British crown, effectively divesting Malawians of their ownership rights to land and putting mere occupation rights in their place (Government of Malawi, 2006: 3). Land rights were governed by the 1902 Nyasaland Order in Council until Malawi's independence in 1964

(Government of Malawi, 2006). This enshrined English Property Law as the only legal framework in the colony. In 1951 a Land Ordinance divided land in Malawi into three categories – customary, private and public – with customary land falling under the Crown (Government of Malawi, 2002). After independence in 1964, the Land Act of 1965 vested this land under the President but otherwise the first 30 years of Malawi’s independence amounted effectively to a continuation of the colonial order with regard to land tenure (Government of Malawi, 2006).

Malawi embarked on a land policy reform process in 1995. The country’s political commitment to reviewing its land laws led to the establishment of a Presidential Commission of Enquiry on Land Policy Reform and the enactment of the National Decentralisation Policy in 1999 (which provided for the devolution of land administration functions from the centre). In 2002 the Malawian government adopted a new policy framework, the Malawi National Land Policy followed, in 2006, by a Land Law (Amendment) Bill which was presented to Parliament and then referred back for review by the parliamentary technical committee. A key provision of the National Land Policy was the recognition of land as a key resource for economic and social development and the guarantee of legal protection of land rights held under customary law.

After protracted lobbying and discussions between government and civil society organisations (International Land Coalition, 2015 and Mlaka, 2018) Malawi reached another critical juncture in its land reform process in 2016, when a total of 10 land and land-related laws introduced far-reaching changes.¹⁵ Among them, the Land Act of 2016 is “the principal act with respect to land administration and management in Malawi and for all matters relating to land such as land tenure, land transfer, land use and compensation” (Ministry of Agriculture, Irrigation and Water Development, 2017: 91). Its main purpose is to replace the Land Act of 1965 and harmonise the legal framework for land ownership and administration with the aspirations of Malawi’s National Land Policy of 2002 (Mlaka, 2018).

In terms of this Act all land is now entrusted in perpetuity in the Republic, which marks a significant departure from the previous dispensation. Section 7 (1) of the Land Act of 2016 re-categorises land as either public or private land (Mlaka, 2018). Public land now encompasses unallocated customary land as well as government land such as conservation areas, historical sites, national parks, school premises and government offices (Ministry of Agriculture, Irrigation and Water Development, 2017). Public land is held in trust on behalf of the Malawian people and may be administered by a Traditional Authority,

15 The full set of laws comprised the following: The Land Act of 2016, the Customary Land Act of 2016, the Lands Acquisition (Amendment) Act of 2016, the Land Survey Act of 2016, the Physical Planning Act of 2016, the Forestry (Amendment) Act of 2016, the Registered Land (Amendment) Act of 2016, the Malawi Housing Corporation (Amendment) (No.2) Act of 2016, the Local Government (Amendment) Act of 2016 and the Public Roads (Amendment) Act of 2016.

a local government authority or the central government; customary land falling within a Traditional Land Management Area (TLMA) must be administered for the benefit of the wider community. The 2016 Land Act defines private land as all land held, owned or occupied under leasehold title, freehold title or as a Customary Estate that is registered as private land under the Registered Land (Amendment) Act, another of the land acts which was adopted in 2016. A customary estate is defined as any customary land held, occupied and owned as private land within a TLMA, which is registered as private land under the Registered Land (Amendment) Act 2016.

The Customary Land Act of 2016 makes provision for the formation of Customary Estates which allow smallholder farmers in TLMAs to secure legal title for their land and thus enjoy legal protection against encroachment (Mlaka, 2018). Such an arrangement affords them protection from other interests and encroachment, including those of Traditional Authorities. Accordingly, the customary estates that have been created under the Customary Land Act of 2016 and registered under the Registered Land (Amendment) Act of 2016 ensure the rights holders' security of tenure and protection of the investments made on their land. The Customary Land Act of 2016 also recognises the authority of customary law in contexts where the affected social actors regard long-established legal practices and rules effectively as law. In this regard, the Ministry of Agriculture, Irrigation and Water Development (2017: 92) defines customary land as "the lands occupied and used by members of a community who live under customary law." Significantly, the Ministry (2017: 92) notes that 'Customary land ... is not communal land' but rather:

Most customary land is divided into pieces allocated for the use of individuals and their families. Rights to this land are usually well defined, often for exclusive use (with some exceptions), and transmissible, but do not extend to transfer for value (money) or outside of the community, although, in practice, sale of customary land does occur. Customary land obligations often include allowing open access to post-harvest land for common grazing.

In a bid to avert the imprudent disposal of customary land that has been titled, the Registered Land (Amendment) Act of 2016 also requires that the express permission of local land committees must be sought before any such dealings are approved (Mlaka, 2018).

Land registration districts are now being decentralised. In addition, land registers are required to specify the class of land that is being registered. Local land committees have replaced the Local Land Boards of the previous land dispensation. In favour of youth, the new land laws have reduced the age of majority for purposes of accessing private land from 21 to 18 years (Ministry of Agriculture, Irrigation and Water Development, 2017). This is particularly significant for rural dwellers who tend to marry early and for whom land is a critically important social and economic resource.

The Customary Land Act of 2016 is thus a milestone in terms of legislative attempts to address the unequal power relations that have been stacked against women and youth with regard to land ownership. The newly enacted land laws seek to empower women to own and register land in their own names. The laws recognise and promote the dignity and welfare of women and other marginalised groups in Malawian society and empower them to use land to produce food, generate household income and be self-reliant (Mlaka, 2018). However, the new Land Act has generated mixed reactions in Malawian society. Some traditional leaders are cautious and advise against the breaking of existing societal norms and traditions around land management. For example, according to Mkonda-Mana (2017: no page number) Inkosi Mpherembe remarked: “I don’t know what it means to empower women because as far as Ngoni tradition is concerned, they are already empowered...if a woman is married to me, she has access to the same land that I have, full stop.” However, a farmer countered the chief’s claims as follows: “This new law will assist many women in the country to do their own things including farming and construction of houses comfortably, knowing that no one can tamper with them” says Mkona-Mana (2017: no page number).

A test of the power of the new post-2016 land dispensation to protect vulnerable land rights and the interests of customary land users will be seen in how effectively it is able to support rural Malawi withstand the intensifying pressures they are facing in the form of agricultural commercialisation, extreme weather events as a result of climate change and falling productivity among smallholder farmers. As described by the International Land Coalition (2015: 7):

Population growth is one of the main factors putting pressure on land, and is a major cause of landlessness and fragmentation of customary land. Insecurity of tenure (and poverty) has increased and more people are losing their land, either to foreign investors or to large-scale domestic land users. Vulnerable groups, especially women, are particularly affected

According to Sibanda and Chikohomero (2018), there are ongoing concerns about the Malawian government’s capacity to implement the new reforms and effectively regulate and coordinate the different processes involved. Public confidence in the government’s capacity to deliver on the promises of the new land policy is low. Given the central role and influence of traditional leadership at local level in rural areas, there are also fears that rural communities, especially women, may not fully access the land rights and tenure status that is laid out in the statutes.

5.5.2 Land administration and governance

The Ministry of Lands, Housing, Physical Planning and Surveys of Malawi is the primary agency charged with the responsibility for administering land and housing. Its mandate is to provide effective and efficient land services and to promote “sustainable management and utilisation of land and land-based resources”, according to the International Land Coalition (2015: 15). With regard to customary land administration and management, the Customary Land Act of 2016 is now the principal law in Malawi. In operational terms, this legislation is leading to the creation of Customary Land Committees (CLCs) at the level of the Group Village Head, in order to manage land falling within a given Traditional Land Management Area (Ministry of Agriculture, Irrigation and Water Development, 2017). These committees are chaired by the Group Village Head and comprise six elected community members, three of whom must be women.

The Customary Land Committees (CLCs) are required to observe sustainable development principles in the discharge of their duties. In practical terms, this means: i) considering the relationship between natural resources, land use and the environment with respect to customary land, ii) seeking and considering the views of other local government structures that have jurisdiction within a given Traditional Land Management Area, and iii) not allocating land or granting a customary estate without approval of the relevant Traditional Authority. Land disputes are to be resolved through designated land tribunals which are constituted at different levels, starting with a Customary Land Tribunal at the Traditional Authority level, then a District Land Tribunal (presided over by the District Commissioner), and then the Central Land Board (presided over by the Resident Magistrate). The Act prescribes the inclusion of women in each of the three land tribunal levels. Where a complainant is unsatisfied with the outcome of decision of a land tribunal, they are free to appeal to the next level of tribunal and from there to the High Court.

According to Mlaka (2018, it is still too early for most Malawians to have fully absorbed the significant changes in the land dispensation and to exercise the new rights they have been accorded. As already indicated, there is still limited awareness of their rights among women and the participation by women in land reform processes is low. Cultural practices that favour men at the expense of women are still dominant when it comes to ownership, access and decision making around land within households. However, over time the land rights and the security of tenure of women and other vulnerable groups can be expected to improve if and as the new land laws take root.

5.6 Climate change in Malawi

5.6.1 Policy framework

Having signed the UNFCCC in 1992, Malawi's first official response to the issue of climate change came in 2006 when it adopted its NAPA (Stringer *et al*, 2010:148). The primary role of NAPA was to identify and promote activities that would urgently address the immediate need for climate change adaptation in vulnerable areas. "The policy identified six districts of the country as most vulnerable to climate change, namely, Chikhwawa, Dedza, Karonga, Nsanje, Zomba and Salima" (Environmental Affairs Department, 2010a: 17), in recognition of the particularly severe livelihood disruptions and hunger these districts were already facing "due to the yearly floods that are often followed by dry spells in the same farming season" (Hara, 2012:10). Oxfam International (2009) noted that the NAPA consultation process in Malawi identified female-headed households, women, the elderly and children as the population groups most vulnerable to the impacts of climate change.

According to Action Aid (2012:16), Malawi's NAPA process identified five project clusters: i) the development of sustainable rural livelihoods to improve community resilience in the face of climate change, ii) the reduction of water flow problems and siltation by restoring forests in the Upper and Lower Shire Valleys and other catchment areas, iii) the improvement of farming production to cope with changing climatic conditions, iv) improving the country's disaster preparedness capacity, and v) enhancing the country's early warning and climate monitoring systems, along with its decision-making capacity and the sustainable utilisation of Lake Malawi and other lakeshore resources. However, the policy struggled to gain traction as a result of lack of funds, particularly at the district level, and poor coordination among the relevant actors (Action Aid, 2012).

In 2012 Malawi stepped up its attention to climate change with the adoption of an overarching national framework, its National Climate Change Policy, with the stated goal of contributing to the attainment of sustainable development, in line with the development goals already outlined in its Vision 2020 and MGDS. According to the Government of Malawi (2012: 3), this was to be achieved "through better adaptation to, and mitigation against, climate change ... with a focus on resilience building for Malawi's citizens." The policy also pointed to the importance of Malawi benefiting from the financial and technological opportunities arising from the move towards low-carbon development on the part of the international community (Government of Malawi, 2012: 3). A related policy, the National Disaster Risk Management Policy, was finalised in 2015, with the objective of helping Malawi achieve sustainable development through the integration of disaster risk management in development planning across all sectors of the country (Grist, 2015). The policy is aimed at facilitating the effective coordination of disaster risk management activities and highlights a set of priority areas and strategies to enhance

Malawi's resilience and provide a common direction for all government, NGO, and private disaster risk management programmes and activities.

Much of the debate on climate change policy in Malawi assumes a close nexus between policy on climate change and on agriculture, with agriculture identified as the economic sector most severely impacted (Grist, 2015; Chinsinga *et al*, 2012). Here there are two dominant narratives, according to Chinsinga *et al* (2012), one centred on how to make agriculture more resilient and the other on how to use agriculture as a pathway to development outcomes more broadly understood. Conservation agriculture, climate-smart agriculture, drought-resistant crop varieties and agroforestry are all variously invoked as strategies to pursue in the light of these narratives.

5.6.2 Non-state actors involved in climate change activities

In addition to government departments and ministries, numerous non-state actors, including international role players, are directly engaged in community-based processes around climate change (Weaver *et al*, 2014). In 2012 Action Aid identified the following major international donors as supporting climate-change-related activities in Malawi: DFID, Irish Aid, UNDP, the African Development Bank, the Japanese International Cooperation Agency (JICA), the UN's Food and Agriculture Organisation (FAO), the Flemish and Norwegian governments, and the European Union (Action Aid, 2012: 17-8). In 2014, according to Weaver *et al* (2014: 6) over 30 donor organisations were supporting climate change work in 754 projects across more than 2,500 locations in Malawi.¹⁶

Many of the bilateral donors work directly with the Malawian Ministry of Economic Development and Planning and/or the Environmental Affairs Department. For example, the UNDP has been working with the Ministry of Economic Development and Planning on a project called "Building Capacity for Integrated and Comprehensive Approaches to Climate Change Adaptation in Malawi." The European Union has been supporting a "Farm Income Diversification Programme" under the Ministry of Agriculture and Food Security, whilst the Flemish Government is funding projects on conservation agriculture and water harvesting. Other donor organisations work with a variety of national and more local NGOs. The increased focus on climate-related programming in Malawi has seen an increase in

¹⁶ Organisations identified included: African Development Bank, Australian Aid, Arab Bank for Economic Development in Africa, Canadian International Development Agency, United Kingdom's Department for International Development, European Union, United Nations Food and Agricultural Organization, Flemish International Cooperation Agency, German Agency for International Cooperation, Global Fund, Icelandic International Development Agency, International Fund for Agriculture Development, Irish Aid, Japanese International Cooperation Agency, Kreditanstalt für Wiederaufbau, Kuwait Fund, Multi-Donor Trust Fund, Norwegian Agency for Development Cooperation, OPEC Fund, Republic of India, Saudi OPEC Funds, UNAIDS, UNDP, UNESCO, UNHCR, UNIDO, USAID, WHO, World Bank, World Food Program.

local NGOs implementing donor-funded activities across the country (Jumbe, Wiyo, Njewa and Msiska, 2008: 6). Community-based initiatives addressing climate change, disaster risk management and food security working can now be found in all the disaster-prone districts. These NGOs mainly provide development assistance in the form of relief aid, capacity and awareness building, advocacy, flood early warning training and other services. However, some of them are also mainstreaming disaster risk management into their community development work. As is discussed in the next chapter, the Mphunga area is no exception in this regard.

Figure 0-1: National and International NGOs active in Malawi, and their focal areas of work

- | |
|---|
| <ol style="list-style-type: none"> 1. Action Aid International Malawi: Disaster Risk Reduction 2. Care International: Disaster Risk Reduction 3. Centre for Environmental Policy and Advocacy: climate change policy research, advocacy and civil society coordination 4. Churches Action in Relief and Development: Disaster Response and Rehabilitation 5. Christian Aid: Disaster Risk Reduction 6. CURE: Research on Impact of Climate Change and Civil Society Coordination 7. Concern Universal: Disaster Risk Reduction 8. COOPI: Disaster Response and Relief 9. Danish Church Aid: Disaster Risk Reduction 10. Evangelical Association of Malawi: Disaster Risk Reduction 11. GOAL: Disaster Response 12. Norwegian Church Aid: Disaster Risk Reduction 13. Red Cross Society: Relief and Disaster Risk Reduction 14. Tearfund: Relief and Disaster Risk Reduction |
|---|

Source: Field data

Figure 5.1 provides a list of the leading international NGOs engaged in climate-change work in Malawi during my fieldwork; three of them – Action Aid, COOPI and the Red Cross Society of Malawi – were well represented in my study area.

5.6.3 Climate change adaptation on the ground

As Rodima-Taylor, Olwig and Chhetri (2014) have pointed out, climate change is causing long-term social and ecological change at the same time as processes of globalisation are increasing the mobility of information, resources and people, along with new ideas that facilitate technological innovations and adaptation. Adger (2003), among others, has argued that smallholder farmers have historically adapted to labour, policy, market and climate changes and thus have an inherent capacity to act collectively and adapt; however, they have relied on traditional knowledge and local coping strategies in adapting to changing needs and socio-economic and ecological conditions. Today the debate on climate change

adaptation and innovation in which they are participating is linked to global policy and interconnectedness, indicating that “the global is embedded in the local and vice versa” in the words of Rodima-Taylor *et al* (2014: 109). At the same time, according to Vermeulen and Wynter (2014) African smallholder farming systems are increasingly vulnerable to frequent and severe climate shocks due to their geographic, socio-economic and institutional characters. According to Action Aid (2006) the increased exposure to droughts and floods that Malawi’s smallholders are experiencing is undermining their capacity to adapt. While seven weather-related disasters were recorded between 1970 and 1989 from 1990 to 2006 the number totalled 33 (almost a fivefold increase) (Action Aid, 2006). In similar vein, Chiotha (2018), an environmental scientist, has documented an increase in the frequency of the drying up of Lake Chilwa (Malawi’s second largest lake) which can be attributed to the impact of climate change.

Following the 1948/1949 famine, the coping strategies that were used by farmers revealed the narrow options available to households for cushioning themselves, according to Pangapanga, Jumbe, Kanyanda and Thangalimodzi (2012: 5). The high incidence and increasing severity of floods and droughts from the 1990s have adversely affected the farmers who now have little or no ability to recover or adapt to disasters. This has left the farmers more vulnerable to extreme weather events, which is resulting in a worsening cycle of poverty and hunger (Action Aid Malawi, 2006). What this and subsequent events showed is that Malawian smallholder farmers have a history of following risk-averse farming practices and prioritising household food self-sufficiency. However, studies also reveal that most farming households do not have sufficient capacity to deal with the negative impacts of climatic changes and the vulnerability they experience as a result of extreme events (Pangapanga *et al*, 2012).

In responding to the changing climate, Malawi’s smallholder farmers are actively engaged in what can be described as autonomous adaptation, through a variety of livelihood diversification activities developed for survival purposes. Coping and adaptation strategies that have been documented include: changes in the crops being grown and the growing patterns, farm piece jobs (or *ganyu*), turning to irrigation where possible and an increase in small livestock farming among others (Pangapanga *et al*, 2012). Remittances from migrants have also played an important supportive role during famine years, even though some migrants sever ties with their sending households. Some households also rely on food assistance from extended family and aid from external agencies (Bryceson and Fonseca, 2005: 3). During the 2001/2 famine, for instance, the significance of migrant remittances was much less than in 1949, resulting in households seeking help from family in urban areas or resorting to *ganyu* (Bryceson and Fonseca, 2005).

Ellis (1998:4) describes *ganyu* as a livelihood diversification strategy that is undertaken in order to improve one’s standard of living or cope with or adapt to adverse circumstances. It is a long practised

strategy in which “social and kinship networks are important” and can thus be seen as a coping measure that is tightly integrated into community organisation. Both men and women practice *ganyu*, and sometimes even school-going children are withdrawn from school to assist their parents. The *ganyu* mechanism involves a reciprocal relationship between labour-short and often better-off households on the one hand, and poorer households or individuals in need of cash or goods on the other, who exchange their labour in return for goods, cash or services from the better-off households. Bryceson and Fonseca (2005: 4) note that:

The demand for *ganyu* labour intensifies at the peak of the farming season and sees the poorer households diverting their time and effort from their own fields to those of better-off households for remuneration. Whilst both men and women participate in the *ganyu* labour market, women often bargain their labour on casual and highly exploitative terms that locks them in the cycle of poverty and hand to mouth existence.

In 1998 Ellis observed a growing reliance on *ganyu* that was leading to a paradoxical situation of idle land belonging to poor rural households. This was leading to a growing trend whereby poorer households engaged in *ganyu* were “resorting to leasing out their land to better-off farmers or outsiders to generate value because they have no time or inputs to work the land” (Ellis, 1998: 2). He referred to it as a negative adaptation strategy, because it is borne out of adversity and fails to reduce the high exposure to climate risk and food insecurity (vulnerability) on the part of the most vulnerable households.

Although most farming activity takes place on upland and dryland fields, wetlands have come under intensifying use, with research revealing increasing competition and conflict over their use and control. According to Peters and Kambewa (2007: 18), “irrigable land along streams and seasonally wet areas has become more valuable as agriculture has become more vulnerable to climatic changes.” In 2010 the Environmental Affairs Department (2010a) identified the following factors as important for the increased pressure on wetlands: i) the volatility of weather patterns in recent decades, ii) the appeal of cash crops, iii) the demand for food stuffs by urban and peri-urban consumers and buyers, and iv) the diversification in family incomes. The increasing competition over and demand for *dimba* (wetland gardens) has led to a growing rental market and a sharp increase in their rentals (Peters and Kambewa, 2007: 20). The authors further observe that the interaction of a variety of factors including local power dynamics, historical settlement patterns, and climatic processes regulates the distribution of wetlands-based winter gardens. Thus villages “along rivers on flood plains and seasonally flooded areas have more households with watered gardens than others, and original settlers and relatives of village heads’ lineage are likely to own or access wetland and stream-bank gardens” (Peters and Kambewa, 2007: 19).

At the same time, there is also evidence of farmers engaging in what could be regarded as positive adaptation strategies. These “are often being implemented with external assistance or outside help in the form of political influence, material assistance in the form of farming inputs, food and financial support, and technical knowledge” (Action Aid, 2012: 21). These strategies mainly focus on closer management of land, water and fuel-wood resources, along with selected agricultural improvements and livelihood changes, including the selling off or leasing out of important assets (for example, livestock, land and food crops).

In developing its national response to climate change, Malawi has recently adopted a set of climate-smart agriculture initiatives as “an approach to increase food security/agricultural productivity, increase adaptation/resilience to climate change and reduce greenhouse gas emissions in a sustainable way” (Grist, 2015: 9). The focus of Malawi’s climate-smart agriculture strategy is squarely on adaptation and increasing productivity rather than on mitigation, given that Malawi does not contribute much to anthropogenic carbon emissions globally. However, climate-smart agricultural technologies are not entirely new. Grist (2015) notes that practices that could be construed as ‘climate-smart’, such as conservation farming, diversified cropping systems, irrigation and use of high yielding and resistant seed varieties have existed for some time “although the climate-smart agriculture approach specifically focuses on improving productivity, resilience and mitigation at farm level.” Organisations such as Total Land Care and the Departments of Land Resource Conservation and Agricultural Extension Services promote conservation agriculture and agroforestry practices.

5.7 Conclusion

Malawi’s economy depends heavily on agriculture, supplemented by development assistance and financial support from international donors. Despite being endowed with abundant natural resources in terms of water, forests and arable land, Malawi is among the world’s least developed countries and its agriculturally based economy is failing to meet the needs of its population. Deepening poverty, high population growth and the resulting increased pressure on land are putting the country’s natural resource base under pressure and reducing its natural capital, a critical livelihood resource for the farmers. Recent reforms in the legal framework around land tenure and administration hold out the promise of securing people’s rights but do not, on their own, lead to diversification of livelihoods.

Climate change, evident most clearly in extreme weather conditions in the form of droughts and floods, are increasing livelihood vulnerability, particularly for smallholder farmers who are dependent on rain-fed agriculture for their survival. High level policy frameworks have been put in place at the national level but capacity to implement them at the local level is weak. In this context the adaptive capacities of smallholder farmers, rooted in a long history of risk-averse farming, are coming under mounting

pressure. A number of public sector institutions, donors and NGOs are playing different roles in addressing issues related to climate change within the policy context of the country. The institutions, processes and structures have both direct and indirect influence on smallholder farmer communities' access to livelihood resources, the composition of livelihood strategy portfolios and their understanding and responses to climate change. This is the wider context within which the discussion of my research findings from Mphunga Group Village in the following chapters must be located.

Chapter 6: Social Structure and Livelihoods in Mphunga Group Village

In order to understand how smallholder farmers are understanding and responding to climate change and its impacts on their livelihoods, it is necessary to first know where they are positioned in terms of their local environments and livelihood strategies. This chapter provides an overview of my research site, Mphunga Group Village, using the key elements of the sustainable livelihoods framework to structure the discussion. The formal and informal organisations operating in Mphunga Group Village, including external aid organisations, the importance of social networks in supporting local farmers and the role of social capital are addressed in Chapter 7 while Chapter 8 looks specifically at farmers' understandings of and responses to climate change and the role of experts within this.

I begin this chapter with a discussion of the history of Mphunga Group Village, including the history of floods as narrated to me by local informants. This is followed by an overview of administrative and governance issues in section 2. Thereafter I describe key socio-economic features of the village, including social structure, housing, wealth ranking and education in section 3. In section 4 I turn to a discussion of the livelihood options available to farmers, drawing largely on the results of my household survey. I conclude the chapter with a brief summary of the main findings presented in this chapter.

6.1 History of Mphunga Group Village

6.1.1 Early history

Due to the lack of formal written documents on the history of Mphunga Group Village, as well as the generally high levels of illiteracy among its residents, the most important ways in which local people recall the past are through oral histories, songs and traditional ceremonies. The following account is based largely on my discussions with members of my Core Reference Group and key informants who highlighted what they regard as significant events in the history of their community. Major natural events such as droughts, famine, and floods as well as political developments such as independence in 1964 were commonly used to date past events.

The people of Mphunga are mainly of Chewa or Maravi origin. Their roots can be traced back to an area now falling within the Democratic Republic of Congo (DRC); local accounts of their origins are corroborated by official histories of the Chewa people of Malawi. (See Phiri, 1977). However, there is no consensus on where the Chewa people originated from, with some historians arguing that their forebears came from Nigeria and Cameroon (Katona, 2018), and others saying they came from the Sudan and Egypt (Nthala, 2009). In any case, in the 1890s the Chewa people moved out of the present-

day DRC under Chiefs Mphunga and Kalonga, the then Chewa Paramount Chief.¹⁷ The chiefs first moved to Zanzibar and then to present-day Zambia, before settling in Malawi's Nsanje District in the Southern Region (Chief Chadza and Group Village Headman Mphunga, Interviews, 2012). Thereafter, Chief Mphunga and his people relocated to Ulongwe (now Zomba District) before moving to Mpondasi in Mangochi District). Subsequently, war broke out with the local Yao people, forcing Chief Mphunga to flee and resettle at Mankhamba in the Dedza District. From Mankhamba, they moved to different locations within Salima District before settling at the recent site of Mphunga Group Village in the 1930s, from where they were forced by floods to move, according to Chief Chadza (Interview, 2012), one of the Village Heads in Mphunga. Chief Mphunga and his people chose this particular site because of its fertile soils and proximity to Lake Malawi.

Phiri (1977) has noted that kinship-based conflicts and economic pressures were determinants of political change in pre-colonial Malawi. The dispersal of cohesive political groupings was often caused by conflicts within the ruling families, while the migration of tribes or sub-tribes across socio-political boundaries were common external factors for change in the region around Lake Malawi (Phiri, 1977; Nthala, 2009). Pachai (1973) states that before the beginning of the British administration in Malawi, conflicts over land were common. Traders, missionaries and other pioneer settlers were able to take advantage of this; they also took advantage of customary laws related to land and its boundaries to lay claims to large tracts of land. As already noted in Chapter 5, the magnitude of the issues emanating from the alienation of land affected all areas of society; this history of dispossession resulted in most Africans becoming tenants on their own land and laid the foundations for the growing poverty and underdevelopment that characterised Malawi's rural areas through the colonial period and beyond. The pressure for land was experienced over long periods and "for almost fifty years, land issues loomed large in the history of Malawi, then known as Nyasaland" (Pachai, 1973: 681).

6.1.2 History of flooding

An important aspect of my research on the history of Mphunga Group Village was to plot the significant weather-related events and timelines affecting smallholders' livelihoods and settlement history since the village was settled in the 1930s. Tables 6-1 below outlines the timeline I developed in conversation with my Core Reference Group while Table 6-2 summarises the official data on the frequency of floods that have affected Mphunga Group Village between 1996/1997 and 2012/2013. This shows the number

¹⁷ A paramount chief is the highest-level traditional leader, equivalent to a Kind, in a regional or national polity within a chief-based system. In the context of Malawi, the hierarchy of traditional authorities and their leadership structure is as follows, from the lowest rank to the highest: Village Head, Senior Village Head, Group Village Head, Senior Group Village Head, Sub-Traditional Authority, Traditional Authority (T/A), Senior Chief and Paramount Chief (Mphunga Group Village Head, Interview, May 2013).

of people affected and the assistance rendered to the flood victims, according to records at the Salima District Assembly. (These and the records of the National Department of Disaster and Risk Management were however incomplete for some years).

Table 0-1: Local recollections of key weather-related events (1948/1949 – 2012/2013)

Year/Season	Event
1948/1949	Severe national drought and famine destroyed crops, houses, livestock and other household assets, followed by a famine.
1959	Famine caused by drought.
1995/1996	Floods destroyed crops, houses, livestock and other household assets. The damage saw then President of Malawi, Dr Bakili Muluzi, visit the area and donate relief aid.
1999	Floods.
2000/2001	Intense floods destroyed houses, and washed away fields and crops as well as livestock.
2001/2002	Another grave famine was experienced due to drought. There was no place to buy food (maize) in Salima District and people resorted to eating wild tuber plants.
2006/2007	Intense floods occurred, forcing some people to move “temporarily” to neighbouring Kandulu and Sani Maganga Group Villages.
2009/2010	More farmers from Mphunga moved to Kandulu, with the group village head the last one to move in December 2010. Many families left their home structures standing with the hope of returning to their original homes. Over the intervening years, most households dismantled their old homes and built semi-permanent or permanent structures at their new sites within their adopted villages.
2010/2011	Floods came in January and February at a time when field crops were nearing the mature stage. Group Village Head Mphunga and his family finally followed the rest of his villages to nearby Kandulu Village, effectively deserting the original site of Mphunga Group Village. The administrative standing of the Group Village was, however, maintained.
2011/2012	The floods experienced during this farming season were not as severe as in the previous years, hence many farmers managed to harvest crops for own consumption, with some for sale, from both their fields and wetland gardens.
2012/2013	The 2012/2013 farming season was particularly bad owing to intense floods between December 2012 and January 2013, followed by a prolonged dry spell in February 2013. Rice farmers who had bought seed on credit were among those most adversely affected, and many farmers ended up undertaking <i>ganyu</i> from the local “rich” farmer and in other neighbouring villages and further afield.

Source: Core Reference Group Discussions, 2013

As can be seen, there is fair comparison between the official and unofficial summaries, with the former more precise as to the number of people affected and focused on the official relief assistance provided and the latter more descriptive as to the impact on homes and land. According to my informants in the Core Reference group, until the 2010/2011 floods that displaced the last set of farmers, farming was a reasonably successful enterprise that earned many farmers a relatively good income; this allowed them to afford better houses and live lives that are remembered by my informants as generally happier than

in the present. Most of the farmers are settled in the nearest Kandulu Group Village among the predominantly Yao people who label them as “MaBurundi” (a negative term for outsiders or refugees).

Table 0-2: Records of climatic hazards in Mphunga Group Village (1996 – 2013)

Year	Disaster	Affected Households	Assistance Rendered
1996/1997	Floods	435 households	No records
1997/1998	Floods	300 households	No records
1998/1999	No records	No records	No records
1999/2000	No records	No records	No records
2000/2001	Floods	200 households	No records
2001/2002	Drought	No records	No records
2002/2003	No records	No records	No records
2003/2004	Floods	545 households	No records
2004/2005	No records	No records	No records
2005/2006	Floods	120 households (82 male- and 38 female-headed households)	50 kg maize flour, 20-litre buckets, 10m plastic sheet, 1kg salt, 4 plates, 5 cups, 2 blankets, 5 kg beans per household
2006/2007	No records	No records	No record
2007/2008	Floods	386 households (293 male- and 93 female-headed)	The Salima District Assembly proposed to relocate entire village to higher ground upland but they refused
2008/2009	Floods	330 households (250 male- and 80 female-headed)	Relief aid received from government & NGOs, and farmers were told that was the last aid from government unless they relocated
2009/2010	Floods	49 households (30 male- and 19 female-headed)	No relief assistance rendered, the remaining Mphunga households relocated to Kandulu and Sani Maganga Group Villages
2010/2011	Floods	35 households (23 male- and 12 female-headed)	No assistance provided but rapid assessments conducted by the District Civil Protection Committee. Group village headman Mphunga and the last village moved to Kandulu Group Village
2011/2012	No record	No records	No records
2012/2013	Floods and dry spell	450 households directly affected through loss (247 male- and 203 female-headed)	Children and disabled not listed. Relief from many sectors, including NGOs like COOPI, Action Aid and Red Cross

Source: Salima District Assembly, 2013.

These farmers are now beginning to be assimilated into Yao culture, including its language and Islamic practices, in order to fit in with their hosts, in the hope of maintaining peace and securing their

occupation. Mphunga farmers continue to till their wetland gardens and land at their old home sites, particularly during the winter farming season when floods are unlikely to occur.

According to the official records, some of the worst floods experienced in Mphunga occurred during the 2003/2004 farming seasons. Further serious flooding also occurred during the 2007/2008 and 2008/2009 farming seasons, forcing nine of the 13 villages making up Mphunga Group Village to relocate to neighbouring Kandulu and Sani Maganga Group Villages, initially with the understanding that it would be temporary. Among my life-history respondents, Harry and Alima relocated in 2008 following the 2007/2008 floods, and Janet, Saison and Zeinub moved in 2009 following the 2008/2009 floods whilst Asefu and Professor relocated in 2010 and Chief only moved in 2011. Henry relocated in 2003 to set up a second home near his grocery shop and grinding mill business at Kandulu Trading Post. He maintained another home back at the old Mphunga settlement site which he lost during the 2010/2011 floods. Margret maintained a primary home away from Mphunga where she was employed and only came to Mphunga to farm hence only her rented farmland was affected by floods.

As discussed further below, the majority of farmers are struggling to restore their livelihoods to the levels that they recall from before their displacement by the floods (Core Reference Group Discussions, April 2013). The life histories that are presented in Chapter 7 provide insight on the survival challenges faced by farmers in this regard. For example, Janet, Chief, Professor and Saison used to harvest surplus yields of beans, rice, maize and a range of vegetables which were sold to traders from as far as Lilongwe Capital City and Zambia. With proceeds from both their summer and winter crops, Chief, Janet, Professor and Saison could afford to build housing structures with cement, brick and asbestos roofing, but now they cannot afford it. They could afford to pay for their children's school fees from the income they generated from farming. The old and abandoned housing structures they left behind at their old settlement sites were still standing during my field study and follow up visit to the field site in 2016. This is despite the vagaries of the extreme weather events and the neglect that the housing structures have been exposed to over the years.

6.2 Administration and governance

Mphunga Group Village is administered in terms of the decentralisation policy already described in Chapter 5. The Salima District Assembly has a mandate to make and enforce official policy across the district through its Area Development Committees and Village Development Committees, led by village-level Planning Committees. The Mphunga Civil Protection Committee (CPC) was established in 2004 by the Salima District Assembly, with support from local NGOs such as Action Aid, COOPI and Red Cross Society of Malawi. The CPC plays an important role in developing and promoting

village-based early warning systems against floods as well as evacuating the elderly, disabled and children during floods. Unlike the Village Development Committee, the CPC is active in responding to natural disasters like floods and other crises, for instance evacuating the elderly and disabled during floods and assisting NGOs and the Salima District Assembly to distribute relief aid. District and village-level Civil Protection Committees were created by the Malawi national government under district Departments of Disaster and Risk Management, with a mandate to deal with natural disasters such as the incessant flooding. Village Heads and their Group Village Head constitute the Village Council that has overall authority over the group village, with a mandate to hear local cases, settle conflicts, impose fines and act as custodian of the land on behalf of the state (Nkhoma, Interview, 2013).

Mphunga's traditional and family governance system also includes Clan Heads (exclusively male), who consult with their extended families on family matters and then liaise with the respective Village Heads who in turn consult with and report to the Group Village Head. They play a key role in enforcing local norms and customary support systems – for instance, funeral attendance and contributions to the bereaved family are enforced by Clan and Village Heads who maintain a record of support rendered and have the authority and power to fine those who miss funerals or do not contribute.

Outside the official policy-making processes led by the District Assembly, the different tiers of traditional authorities (in order of seniority: Traditional Authority, Senior Group Village Heads, Group Village Heads, Senior Village Heads, Village Heads and Clan Heads) effectively make policy in the form of community by-laws and decrees within their respective areas of jurisdiction (Group Village Headman Mphunga, Interview, 2013). For example, the Mphunga village heads have passed a community by-law to curb teenage pregnancy before the age of 18 years, which stipulates that in the event of an under-age pregnancy a goat is payable by the responsible male party. The Village Council has also decreed that no one from the village is allowed to work in the fields on the day of a funeral in the village. While women are dominated by men and often excluded from community and household decision-making processes and positions, two of the 13 village heads in Mphunga are women and there is a growing trend of women holding positions (often secretarial) in local clubs, associations and community-based organisations.

The Village Development Committee (VDC) is the principal structure of local government at the village level with influence over access to livelihood resources and organisational processes (Ministry of Local Government and Rural Development, 2012). The Mphunga VDC has 11 representatives from the 13 villages that make up the group village. The VDC Chair, Deputy Chair and Village Group Head are members of the Area Development Committee (ADC) of the Ndindi T/A which meets once or twice a month (Munthali, Interview, 2013). The ADC liaises closely with the Area Executive Committee – a development support platform of various government departments and NGOs that are active in the

traditional authority area. Both the ADC and AEC report to the District Executive Committee that is chaired by the District Commissioner.

On paper and in policy, the VDC is responsible for development planning and facilitation at the community grassroots level. It is supposed to coordinate with the Group Village Head and Village Heads on developmental issues for their area. As the official local-government entry point into the villages, the VDC has the mandate to vet and interact with external development organisations that come into their community and decide whether or not to work with them. According to Guidelines developed by the Ministry of Local Government and Rural Development in 2012, each VDC also has a Village Natural Resource Management Committee that is tasked with resource and environmental management issues. The reality, however, is captured by the Guidelines when they note that the lack of operational resources, skills and knowledge constrains the effectiveness of the decentralised structures (Ministry of Local Government and Rural Development, 2012: 13).

This is the case in Mphunga, where Mphunga's VDC is ineffective and poorly coordinated. The Natural Resource Management Committee is dysfunctional and the farmers I met did not even know about its existence and mandate. According to Munthali (Interview, 2013), the Overseer of Area Development and Village Development Committees in the Ndindi Traditional Authority, some of the VDC officials and Group Village Heads did not fully understand their mandate and developmental role, particularly around leadership, gender and human rights issues. At the time of my study the VDC was inactive. It did not participate in ADC meetings regularly, and so was not well informed about development opportunities and issues within the Ndindi T/A or Salima District (Mrs E.R. Munthali, Interview, 2013). The Civil Protection Committees, in which NGOs are represented, were much more active and better resourced. However, the Mphunga VDC does call local meetings to consult on issues brought before it by the community or external organisations that are working or would like to operate in the community, for example, Land O' Lakes, COOPI and others.

Within the limitations outlined above, village governance processes are consultative and participatory. However, given the challenges of the decentralisation policy and the inherent incapacity issues of the local government system in Malawi, the policy largely remains on paper. In practice there are no resources and capacity for the administrative structures below the Salima District Assembly to deliver on their mandate. Holmes, Scott, Both and Chinsinga (2018:10) state that:

the ADCs and VDCs – all face challenges to their effective functioning in practice for various reasons, ranging from practical issues....to more structural issues. Specific bottlenecks have also been identified in relation to communication and information sharing between district and national level.

Programme fragmentation, incomplete decentralisation at the district level result in the district councils not keeping abreast of the activities of “NGOs and development partners in their districts, and some programmes by-passing local government structures (ADC and VDC) for reporting”, according to Holmes *et al* (2018:10). Underlying such challenges are structural and pragmatic issues like limited funding, poor coordination, understaffing and limited technical capacity to fulfil their mandate. In addition, officials have limited understanding of their roles and are overburdened, resulting in key “challenges to the effective functioning of current institutional coordination arrangements” (Holmes, 2018:10). Consequently, communities have to make do with what is at their disposal and turn to external aid from NGOs. Social capital as collective action at this level is therefore weak and too reliant on NGOs who are supporting the community-based organisations, District and Village-level Civil Protection Committees and the flood early warning system. Farmers engage these processes in trying to manage their own community development through the interaction of bottom-up and top-down developmental processes. The extent of farmers’ involvement in their own development process, and the role of the social networks that interact with them, have implications for how they respond to climate change experts, as discussed further below.

6.3 Socio-economic features

6.3.1 Social structure

According to 2013 district-level data, Mphunga Group Village had an overall population of 4,583 people, distributed across 13 villages and 1,026 households (Mtchoka Hospital, 2013). The survey found that from a total population of 4,583 people 57 per cent were female, and 43 per cent were male. Reasons for the notably marked gender imbalance reported in the survey have not been investigated but the preponderance of females in the local population reflects a general trend of adult male depopulation in Malawi’s rural areas as a result of various factors, most significantly out-migration in search of work. As a result, my respondents turned out to be heavily skewed towards women, with a total of 102 of my 129 respondents (79 per cent) being female, many of them elderly. In part this preponderance reflects that the population of Mphunga Group Village is female-dominated, and only 21 per cent were males (N 27). The gender imbalance in the adult population points to the importance of gender as a significant variable in how farmers are responding to experts, an issue to which I return in Chapter 8.

As is true of Malawi more generally, the population is also youthful. According to the Mphunga Village Health Survey by Mtchoka Hospital (2013) availed by the Area Health Survey Assistant (Mr Nkhata, Interview 2013), close to 90 per cent of the total population was under the age of 35, with only 12 per

cent was older than 35 years old. Children under five years made up 26 per cent of Mphunga's population. Household size in my survey ranged mainly between five and seven members, with a few outlier households having as few as three or as many as 10 members.

In terms of ethnicity, the village is predominantly made up of Chewa people, who have traditionally been Christian although many are now converting to Islam (see Table 6-3). The Chewa people account for 72.9 per cent of the 129 households in my survey sample, followed by Yao at 25.6 per cent, and then the Mang'anja, and other smaller tribes.

Table 0-3: Ethnicity of household survey respondents

Ethnicity	Number	Per cent
Chewa	89	72.9
Yao	33	25.6
Mang'anja	1	0.8
Others	1	0.8
Total	129	100.0

Source: Household survey data, 2013

According to my household survey, the majority of respondents are Muslims, at 81 per cent, whilst Christians constitute the second largest religious group, at 18 per cent, with other religions beliefs accounting for the balance. On religious affiliation, as noted above, the Chewa people have traditionally been mainly Christian, but are increasingly converting to Islam; this was accounted for in my Core Reference Group discussions as the result of co-existence with their Muslim hosts in Kandulu Group Village, who are predominantly Yao and Muslim.

The farmers follow a matrilineal system whereby, upon marriage, most men are expected to settle next to their in-laws and work on the land their wives inherit from their family. Whilst the matrilineal system facilitates access to land for women, the male figures (maternal uncles and fathers) in the women's families are effectively in control of the land and marital arrangements. Polygamy is a relatively common practice among all the ethnic groups, sanctioned by cultural and religious reasons and conferring social status on the man. It is seen as a sign of virility and offering an opportunity for the husband to switch homes when facing personal challenges with one of his spouses (Chief Chadza, Interview, 2013).

Polygamists are perceived to be powerful and comparatively rich hence they enjoy power and a higher social status over non-polygamists. Table 6-4 shows the results for marital status from my household survey, with a total of 44.2 per cent of the respondents reporting that they are in monogamous marriages,

18.6 per cent in polygamous marriages and a further 7 per cent describing themselves as divorced. A total of 30 per cent of my respondents described themselves as widowed.

Table 0-4: Marital status of household survey respondents

Marital status	Number	Per cent
Married in monogamy	57	44.2
Married in polygamy	24	18.6
Divorced	9	7.0
Widow/widower	39	30.2
Total	129	100.0

Source: Household survey data, 2013

Stigma around HIV/AIDS is prevalent and local respondents were reluctant to speak about it openly, although during my Core Reference Group discussions farmers indicated that access to health is one of the challenges affecting them. It is known from other studies (Salima Social Economic Profile, 2011-2013; Malawi National Statistics Office, 2012) that HIV/AIDS is a major driver of poverty in Malawi, and the pandemic is taking its toll on all aspects of the economy; it also renders households even more vulnerable to climate-induced shocks and undermine resilience. According to the Joint United Nations Programme of HIV/AIDS (UNAIDS, 2017), 9.2 per cent of the adult population (aged 15-49) in Malawi is living with HIV, and around 24,000 people died from AIDS-related illnesses in 2016. The high prevalence rate has an impact in the low life expectancy. A number of factors are contributing to the spread of HIV/AIDS, with particularly adverse implications for women's rights. These include the high levels of male migration and lengthy absence from their families, polygamy and wife inheritance. According to one of my informants traditional cultural practices like widow cleansing rituals¹⁸ are a constraint on the rights of women and expose them to HIV/AIDS (Mlanga, Interview 2013).

6.3.2 Wealth clusters and ranking

In my study, I wanted to understand the levels of relative wealth in the village, and particularly how these different levels are associated with the resilience and coping mechanisms of households, if at all. The process of household wealth clustering that I undertook as part of my fieldwork helped me to define poverty from the perspective of local farmers and relate their definition of wealth to other variables, including gender, educational levels, housing and other asset ownership. As explained in Chapter 4, this

¹⁸ This is a practice in which recently widowed women are encouraged to have unprotected sex with strangers. Many believe that in order to prevent being cursed by the departed soul of a deceased husband, a widow must have unprotected sex with a "cleanser" who is paid money for the service. The tradition is ingrained in some cultures so much that some widows feel obligated to have these services performed, despite the risk of transmitting HIV or other sexually transmitted diseases.

exercise revealed that households perceived as “very poor” comprised the largest portion of the village’s population, (at some 36 per cent), followed by “better-off” households (at 33 per cent), and then “poor” households (at 31 per cent). However, membership in these categories should not be regarded as fixed – thus “poor” households could transition into the better-off or very poor cluster, or maintain their status quo, depending on circumstances and the livelihood asset portfolios available to them at a particular time. Thus, of the 10 farmers from whom I obtained detailed life histories during my fieldwork, eight were on what I described as a downward livelihoods trajectory, as a result of the intersection of a range of pressures which I discuss in the next chapter.

The household wealth clustering was useful for deepening my understanding of how Mphunga farmers define and understand wealth within their own local context. The following were identified as core drivers or generators of wealth through this exercise, and they are not listed in any order of priority:

- Ownership of livestock such as cattle, goats, donkeys, chickens and ducks
- Land ownership (inclusive of leased land) or the amount of land cultivated per season
- The ability to employ others; alternatively, reliance upon working for others (*ganyu*) as a marker of relative poverty
- Sources and extent of income per annum, with owning a small business and having savings indicative of relative wealth
- Ownership of certain assets, including a bicycle, an oxcart, a brick house under zinc-sheet roofing
- Access to agricultural inputs, implements and other means of production.

It is important to note that not all the farmers agreed on the above drivers of wealth. Others perceived the growing importance of outward migration to places like South Africa and the associated remittances as important generators of wealth. Migration to other parts of the country for seasonal work on the tea and tobacco estates was not as important according to the farmers. With regards to land access and ownership, the type of land owned or accessed (for example wetland) is a key factor of consideration and carried a different value.

Other markers of status and proxy indicators of wealth included the ability to pay for their children’s school fees, food self-sufficiency, income from non-farm sources, level of education and having family members working in South Africa. Table 6-5 below presents an overview of the distribution of the productive assets that were identified as key during the PAR exercises with my Core Reference Group across the households in my survey, by wealth cluster. What this shows is that none of the 129 surveyed households owned ploughs, and only a very small number (4) owned treadle pumps. Also of note is that while hoes were commonly owned, 14 of the poorest households reported not owning any.

Household possessions such as sewing machines, televisions and radios were distributed across the three wealth categories, but with the better-off group markedly better endowed with such possessions in comparison to the other two groups. The sewing machine ownership among a handful of poor and very poor households is a result of Action Aid donating them during floods, as part of a poverty eradication project that targeted the poorest households. Red Cross Society and Action Aid also donated water engine pumps to the entire group village, to improve food security through winter cropping irrigation (Mlanga, Interview 2013).

Table 0-5: Ownership of assets by wealth cluster among household survey respondents

Household Assets	TOTAL	Very poor (47)		Poor (40)		Better-off (42)	
		No	Yes	No	Yes	No	Yes
Ploughs	0	47	0	40	0	42	0
Treadle pumps	4	47	0	40	0	38	4
Engine pump	0	47	0	40	0	42	0
Fishing equipment	3	47	0	39	1	40	2
Oxcart	6	47	0	40	0	36	6
Hoes	107	14	33	7	33	0	42
Sewing machine	11	44	3	38	2	36	6
Radio	42	44	3	35	5	16	34
Television	12	45	2	39	1	33	9

Source: Household survey data, 2013

The comparatively high ownership of radios and television sets by the “better-off” households is significant in terms of their access to the world beyond their village. Households with these assets are more exposed to external source of information, including access to media programmes on farming and climate change. As a result, these households do not have to rely exclusively on experts coming to the village for their information on climate change, which could give them a basis for comparing different inputs and a broader perspective on issues.

Households identified as “very poor” or “poor” in my study typically had access to 1-2 acres of cropland and might own some poultry (chickens and ducks) and perhaps some goats. In contrast, the better-off households were planting between two and five acres of land and owned a larger number of chickens, ducks and goats and in some cases cattle. During the 2012/2013 farming season, respondents across the three wealth clusters in my household survey allocated more land to food crops than to cash crops, indicating their prioritisation of household food security over cash. This was consistent with local understandings of not being poor, which is premised on the availability and diversity of food, rather than on cash income and ownership of assets alone. Also consistent with the importance of food crops

is the issue of the number of months during which farming households are able to rely on food from their own harvests. On average the very poor and poor respondents in my household survey reported being able to provide their own food for four to six months of the year respectively, whilst the better-off could meet their own food needs for nine or more months of the year, according to my survey results. The shortfall between production and needs for the whole year highlights the importance of *ganyu* and other livelihood diversification strategies as well as the importance of social support systems and networks for household survival.

6.3.3 Education and wealth ranking

Education in the form of skills and knowledge is an important feature of human capital. The level of formal education and literacy rate among the Mphunga farmers is generally low. According to my household survey (see Table 6-6 and Figure 6-1), fully half of my respondents (64 of 129) had never been to school, almost half of them (31) falling in the “very poor” category, followed by 19 respondents in the “poor” category. Only two of the farmers identified as “very poor” had gone beyond junior primary school (to senior primary), compared with six “poor” and 13 “better-off” farmers; the two farmers with secondary school education fell into the latter group. However, it is also worth noting that 14 of the 64 respondents who had never been to school were placed in the “better-off” wealth cluster and the 40 respondents with junior primary education were distributed almost equally across the three wealth clusters. Furthermore, Henry, the one Mphunga farmer identified as rich through my fieldwork (and not included in the household survey) only has a junior primary education. (For details on his livelihoods portfolio see Appendix 3).

Table 0-6: Education levels of household survey respondents by wealth cluster

Education level	Wealth cluster			Total
	Very poor	Poor	Better-off	
Never attended	31	19	14	64
Adult literacy	0	1	3	4
Junior primary	14	14	12	40
Senior primary	2	5	10	17
Junior secondary	0	1	1	2
Senior secondary	0	0	2	2
Total	47	40	42	129

Source: Household survey data, 2013

Access to education is highly gendered. The literacy rate for females is lower than that for males as shown among the Core Reference Group members in Appendix 1, and household decisions on educating children reflect a strong bias against girls. Girls are often withdrawn from school to take care of younger siblings or sick family members. The adult male population literacy rate is 72.99 per cent

whilst for adult females it is 58.64 per cent, and the literacy rates for youth are 75.2 per cent for females and 74.92 per cent for males (UN Department of Economic and Social Affairs, 2019). However, the bias against girls is slowly shifting. Thus, four of my respondents who were engaged in community-based adult literacy education were women who were enhancing their human capital with the support of two local NGOs. Of interest here is that according to Chief Chadza (Interview, 2013), men are unlikely to be involved in adult literacy education activities because they are too ashamed to attend classes with women, and opt, rather, to invest their time in income generating activities such as *ganyu*.

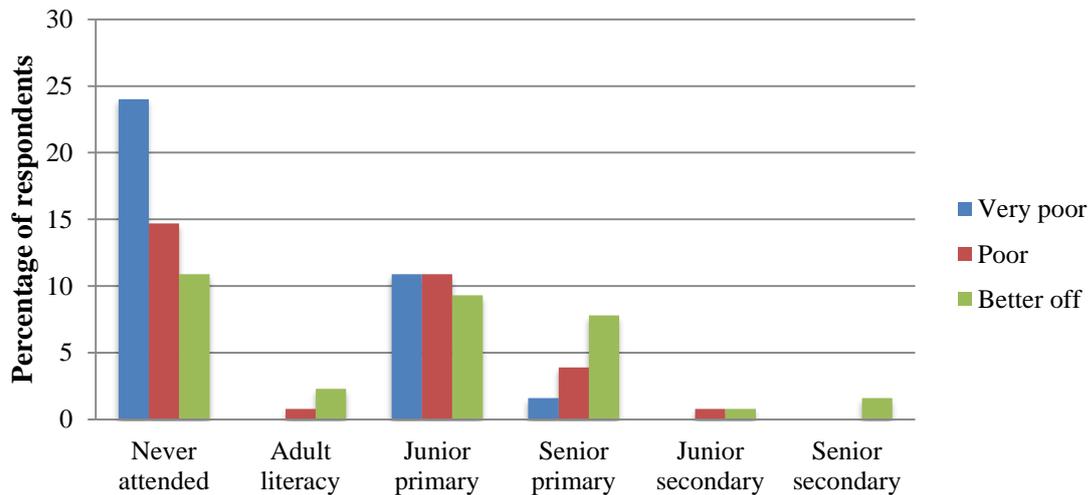
My findings thus indicate a complex relationship between formal education and wealth status, particularly with regards to the better-off respondents. While one can see a positive correlation between levels of education (human capital) and wealth-ranking status (financial capital), formal education is not a necessary condition for wealth, with some of my better-off respondents functionally illiterate yet being relatively successful farmers. This is illustrated by two of my life history informants, Harry and Henry. While Harry completed Form 4 (senior secondary school), he is poorer than Henry, who attained only a Standard 3 level of education (Grade 5, junior primary school) and is the richest farmer in Mphunga Group Village, with a grocery shop and milling business in addition to his relatively extensive land holdings. (See Appendix 3).

In addition to their practical farming knowledge and skills, farmers who lack formal education may still have access to family labour and reasonably good health, allowing them to focus on working their land and generating household incomes. Farmers like Zex and “Professor” have also managed to educate their children who are looking after them in various ways, for example through remittances, land rentals and farming inputs (an example of social capital). My survey results also show that there are fewer disparities in wealth status (by asset ownership or economic capital) among respondents with junior primary education. In other words, the resilience levels and livelihood strategies available to farmers with junior primary education is not markedly different across the three wealth clusters. Functional literacy skills do, however, mean that literate farmers are better placed to access extension advice from experts, read farmers’ magazines, belong to local farmers’ associations and receive other services from external agencies or tune into radio farming programs. This, as discussed further below, is significant for farmer’s exposure to expert views on climate change. At the same time, the ability to speak and understand English enhances one’s ability to migrate out of Salima District or even Malawi altogether, to earn an income elsewhere and support one’s family.

Formal education (human capital) is therefore broadly significant for social mobility and improving one’s wealth status. This can, however, function across generations – an uneducated farmer able to produce a high-yield cash crop may be able to educate his or her children who, in turn, can support the household through remittances, or the purchase of productive economic assets. None of the very poor

respondents in my study were attending adult literacy education at the time of the study. They were, rather, investing their available time in casual labour. By investing in *ganyu* they were able to meet some of their immediate household basic needs but this involved diverting time and labour away from addressing long-term needs such as building their human capital by improving their education.

Figure 0-1: Educational level of household survey respondents by wealth cluster



Source: Household survey data, 2013

6.4 Livelihoods

Consistent with the presumptions informing the sustainable livelihoods framework, Mphunga farmers' livelihood strategies are multi-pronged. Households generally rely on several sources of income from different members, each pursuing a combination of crop farming and small livestock rearing, along with migration and non-farm activities at different times of the year in order to earn a living. Chambers (1997: 163-164) refers to the portfolio of activities that are undertaken by different family members at different times of the year and rarely recognised by outsiders, as "fox strategies." Each adult household member (and even children in poor households) has a primary occupation and generally some seasonal side-line activities that they are responsible for, and the income or resources brought by different household members are (ideally) pooled. Rain-fed farming in summer and winter-based irrigation, pit-planting¹⁹ and wetland farming, along with *ganyu*, fishing, small trade and migration are key livelihood strategies for farmers across the three wealth clusters identified through my study.

¹⁹ In a bid to take advantage of winter's soil moisture from the water table, farmers dig up basins of 15-30cm deep on their wetland gardens in which they plant seeds and water the crops during the winter cropping season.

6.4.1 Farming

Even though households pursue a diverse range of shifting activities, farming is the main source of livelihoods in Mphunga Group Village. “Our life is in farming,” one 54-year old male respondent told me. “This is where we get our food and how we earn money to buy food and for other basic needs,” according to another elderly female farmer (61 years old). However, the majority of households currently do not produce enough food to last their households more than five months in a year, and thereafter have to rely on other sources of food, such as food relief, remittances, *ganyu* and borrowing from others within their social network (Household survey; Core Reference Group Discussions, April 2013).

Thus farmers assume multiple identities that are largely determined by their seasonal livelihood occupations as farmers, fishermen, small traders and as migrants. “We are mainly farmers and due to the changing seasons and livelihood needs, we are also fishermen and small business owners. Our children send us money from the city and abroad,” said a female farmer who relies on remittances from her son who is working in South Africa. The constant negotiations around multiple sources of livelihood shape farmers’ socio-cultural and political identities. Yet the female farmer quoted above views herself as a farmer, because that is what her primary existence is based on.

Land and thereafter access to inputs are the most critical productive assets for the smallholder farmers in my study, most of whom are resorting to tilling lowland and rain-fed upland areas along the Lifidzi River’s banks and wetland gardens (if they have them). Growing demand for land is increasing pressure on arable land so that it is now being cultivated every farming season, leaving no opportunity for the soil to regain natural fertility through the land being left fallow from time to time. The deterioration of soil fertility, which is forcing increasing reliance on expensive external fertiliser inputs, is a major risk facing farmers. A 2010 report by the Catholic Relief Services on livelihoods in Malawi confirms the growing land pressure and resultant problem of declining soil fertility facing smallholder farmers. In response to the uncertain climatic conditions and shortage of arable land, farmers now practice more mixed cropping involving drought-resistant crops such as cassava and non-drought resistant ones such as rice, maize and beans.

Table 6-7 shows the major crops grown by the 129 farming households in my survey. Maize is the staple crop grown by all the households, followed by rice, which is both a cash and food crop. “Maize is what we eat here in Malawi, if you have not had *nsima* (maize meal) for lunch you have not eaten,” said Harry (Interview, 2013). The third major crop is beans, which are grown mainly for cash generation and to a lesser extent for consumption. In a particular year farming households can earn between

MK6,500 (US\$9.50) and MK20,000 (US\$29.27) at the June 2013 exchange rates (Core Reference Group Discussions, April 2013).

Table 0-7: Main cash and food crops grown by household survey respondents

Cash crops	Responses		Food crops	Responses	
	N	Per cent		N	Per cent
Rice	104	81	Maize	129	100
Beans	81	63	Rice	86	66
<i>Thelele lobala</i> (Okra)	6	5	Cassava	2	2
Cassava	2	2	Sweet potatoes	3	2
Other	1	1	Beans	8	6

Source: Household survey data, 2013

The farmers with access to lowlands along riverbanks or wetlands (*dimba*) undertake pit-planting (*kugoma*), usually during winter, from which they get higher yields, despite the high risk of flooding. Lowland areas are highly productive, usually producing crops twice a year during both the summer and the winter seasons. Pit-planting is particularly strategic as farmers are able to take advantage of the rich silted soil and high moisture levels left behind after the floods. Winter cropping provides a second opportunity for farmers to improve their yields and income. Irrigation by means of water engines and treadle pumps donated by NGOs is important during sudden dry periods and can boost productivity from multiple cropping in the same year. Small livestock in the form of goats, poultry and pigs are an important asset and form of savings for farmers who can afford them (economic/financial capital). Local farmers' coping strategies in the face of on-going weather shocks are discussed further in Chapter 8.

Markets

Salima District is a flat, low-lying area with a high-water table that is not well suited to the production of grains; hence there is active trading in staples by private traders and state grain marketing agencies throughout the year (Kipandura, Interview, 2013). The farmers experience different commodity prices during the high demand and low supply periods or "acute hunger months" of January and February, when prices for both grain and livestock are high due to high demand for the staple grain at that time.

The main commodities sold from Mphunga Group Village are cassava, sweet potatoes, beans and rice, when yields are good, along with winter crops (such as okra and green maize) and fish from Lake Malawi. With the help of NGOs, farmers have organised themselves into commodity groups that travel as far as Lilongwe City to sell beans and rice when yields are high. The principal destinations are Lifidzi Trading Post, Salima Town, Balaka Town and Lilongwe City. There are also permanent, seasonal and

informal market outlets for a wide range of goods and services within Mphunga Group Village; the different markets are not clearly distinguishable to an outsider.

Daily markets for everyday needs such as produce, firewood and fish are found in open-air stalls along the road that passes through the Mphunga area to Lake Malawi. Then there is the Kandulu Group Village market that has open stalls which sell fresh and dried produce as well as small grocery shops that are open all day. Beyond Mphunga Group Village, there are bigger markets that deal in a wider variety of goods ranging from fish to second-hand clothes. The most popular one is the Lifidzi Market, an important and relatively cheap source of various goods, which is strategically located along the main road between Salima and Balaka Towns and caters for several group villages. It operates on Tuesdays, a designated “market day” when traders from within and outside Salima District meet at the market to trade different household goods, food, clothing and farming inputs and implements. For more services and sophisticated goods like bicycles, there is Salima Town, which is situated about 20 kilometres from Mphunga Group Village and is where the nearest government office as well as local NGO are located.

The terms and conditions of trade are more formalised and cash-based in the markets at Lifidzi and Salima Town than in the village-based ones. Market transactions in Mphunga Group Village are highly negotiable and subject to social factors such as the nature of the relationship between the parties and individuals’ reputation, credit history, wealth status and position in the community (Core Reference Group Discussions, 2013). Social capital can thus be seen at work in the functioning of the village markets. While the market system seems quite disorganised to an outsider, the local markets exhibit a logic that is functional for the people they are meant to serve. For instance, many respondents go to the village market at the end of day, when they can buy the remaining produce at low prices. Cash and barter trading as well as credit purchases are acceptable. I also observed that commodities like sugar, cooking oil and tea that are sourced elsewhere are repackaged into smaller quantities for sale in the village market, to make them more affordable and to enhance profit margins.

6.4.2 Ganyu

As already described, *ganyu* refers to piecework (which takes different forms) which all Mphunga households undertake at one point or another to meet urgent needs. Payments can be in either cash or kind (for example grain), and the *ganyu* work is available from better-off households within Mphunga Group Village as well as in neighbouring villages. The most common forms of *ganyu* involve farming tasks such as ploughing, planting, weeding and harvesting; other tasks include preparing fresh fish for the market, digging wells, making and baking bricks, and shelling maize (Core Reference Group Discussions, April 2013). Earnings from *ganyu* vary between MK300-600 per day (well under US\$1 a day at June 2013 exchange rates), depending on the nature of work performed.

Because of embarrassment arising from the perception that it is only the poorest households who depend continually on *ganyu*, some farmers who do not wish to be identified in this way prefer to seek out *ganyu* in villages or farm estates away from Mphunga Group Village, where they are less likely to be recognised. However, all of the 129 households surveyed in my study reported having had household members engage in *ganyu* in order to meet urgent personal or household needs. For very poor households, *ganyu* can be the main or only source of guaranteed income or food. Farmers who rely heavily on *ganyu* often do so at the cost of their own farm work. Consequently, their agricultural output is usually lower than farmers who are able to invest in their farms more regularly. In the words of Zeinub (Interview, 2013), one of my life-history informants said:

We must do *ganyu* to survive. We don't like to do *ganyu* as we need to work in our own fields and homes.... When we work on other people's fields we cannot attend to our own, but we have no choice. *Ganyu* does not make us happy at all.

Such farmers are likely to resort to renting out some of their land which they are unable to farm and also to rely on gleaning from other people's fields. Opportunities for *ganyu* are not always available, especially during difficult years and the 'hunger months' between January and March when demand is high and farmers have no food. During such times particularly vulnerable households may sell their productive assets, for example small farm implements, poultry or small livestock in order to buy food. Whilst the very poor households are exposed to the same risks of theft, disease, poor soil fertility, floods and droughts as households in the poor and better-off wealth clusters, their ability to cope is more limited. Their high dependency on *ganyu* work means that when there is limited farming activity generally, due to drought or floods hence no *ganyu* opportunities in agriculture, they are particularly vulnerable.

The terms of *ganyu* and wage rates tend to favour the employer who usually has more people to hire than *ganyu* work opportunities, especially during the difficult years when labour supply outstrips demand. That said the farmers with whom I interacted generally perceived *ganyu* wage rates to be fair. A case was cited to me where men, women and children were paid different rates for the same work in a neighbouring traditional authority. The female farmers that I interviewed found it unfair and indicated that they would never go back to that employer for *ganyu*. However, *ganyu* employers that I interviewed (both male and female) felt it was accepted practice to pay women less than men and children less than adults, due to perceived differences in physical strength and ability to undertake *ganyu* work.

6.4.3 Fishing

As indicated in Chapter 5, fish is the primary source of animal protein for people living along the shores of Lake Malawi. However, of the 129 households in my survey, only three (one in the “poor” cluster and two in the “better-off” wealth cluster) actually owned fishing nets, with most of the fish they caught sold (either fresh or dried) and only whatever was left directly consumed. The other households buy fresh fish from those who fish, either for resale or for home consumption. Menial jobs in repairing fishing equipment are another source of livelihoods during the fishing season. However, the three households that own nets also lease their equipment to other fishermen (in exchange for fish) while other village members may fish on their behalf.

Fishing is a seasonal activity that is particularly dangerous when the Lake’s water levels are high during summer months. “Crocodiles and hippos are common towards the middle and end of the summer season when the lake’s water level is high hence fishing can be riskier,” said Saison (Interview, 2013). The Malawian Fisheries Department prohibits fishing during certain times of the year in order to protect the resource, for example during the spawning season, but the fishing season is not enforced effectively because the Department does not have sufficient capacity to enforce its regulations. Zex (Interview, 2013), a farmer and part-time fisherman who has been in the trade for more than 15 years remarked that “the government patrol officials are well known to us and we often warn each other by mobile phone when we see them. Nowadays they do not patrol as often as they used to do in the past, and we suspect this has to do with lack of transport or fuel allocations for patrols.” Although the fishermen that I spoke with appreciated that the closed fishing season is meant to maintain the fisheries resource, their limited livelihood options drive them to fish illegally and overharvest fish stocks. “If we stop fishing what will we eat? In any case, if we observe the closed fishing season other fishermen may not do the same, which leaves us worse off”, further remarked a life-history respondent, Saison (Interview, 2013).

Among the farmers of Mphunga Group Village, there is a cultural belief that women should not be involved in fishing because it often happens at night and is therefore too risky for them. At the same time, there is a belief that women’s menstrual cycle has a negative impact on fish. Moreover, elderly women are not strong enough to venture into fishing, given the hazards. Consequently, women are usually involved in providing other services around fish processing (including laundry and preparing meals for fishermen plying their trade at the lake). During floods and droughts, the dependence on fishing is generally high as more households try to make a living from selling both fresh and dried fish. Fish traders travel as far as Lilongwe City and even further in order to fetch high prices.

6.4.4 Migration

As is the case in Malawi more generally, migration is a key link between Mphunga Group Village and the outside world. Based on the discussions with my Core Reference Group members, it appeared that in the three-year period between 2010 and 2013, at least 88 people between the ages of 17 and 50 years had migrated from Mphunga. Among them were 23 females, and my Core Reference Group members confirmed a new and growing trend of women migrants, most of whom are joining their husbands in the diaspora. The female migrants, however, often return home to visit their families, to give birth and build better houses from savings accumulated. Most migrants have gone to South Africa, with less than 10 of the 88 moving to other destinations within Malawi in search of seasonal employment (Core Reference Group Discussions, April 2013). In this regard, it was interesting to note that a number of small local businesses (grocery shops, entertainment and second-hand clothing shops) were either owned or financed by migrants and often named after businesses in South Africa, for example 7/11, Fruit and Veggie, and Pick and Pay.

Migration plays an important role in household livelihoods through access to income via remittances, as well as to household goods that include mobile phones, seeds and irrigation equipment. Migration can be a source of innovation by exposing not only the migrants but also their household members to new ideas and new technologies that can be transmitted from other places via migrants. Overall, however, despite migration being a critically important livelihood strategy for many households, it has an adverse impact on social relationships in Mphunga Group Village. The high outward migration by young men depopulates the village's male population, leaving women behind to take care of families, farming and general household maintenance. This can put added pressure on family relationships and undermine social cohesion, as in the case of Zeinub, one of my life-history informants, whose husband had migrated to South Africa in 2010 and not returned by 2013 when I interviewed her. Although he phoned from time to time, he was not sending any money home. Zeinub had previously regarded herself as among the "better-off" households in Mphunga but had come to regard herself as "poor" and is struggling to support her children.

6.4.5 Livelihood shocks and aid

Farmers in my study reported exposure to a variety of stresses and shocks that are undermining their livelihoods and, as in the case of Zeinub, causing many of them to slide deeper into poverty. Some of the shocks are seen as weather-related while others are seen as man-made, even though in practice the categories are intertwined. For example, the environmental and weather-related shocks cited by my informants are land degradation, soil erosion, bush fires, droughts, floods and the resultant crop failure and shortage of *ganyu* that leads to famine. The man-made shocks concerned the siltation of the Lifidzi

River, which was attributed to excessive riverbank cultivation upstream, leading to a lack of irrigation water and the drying up of wetland gardens, with adverse consequences for winter farming yields. Also relevant here were major changes in the national economy caused by inflation, which was adversely affecting the prices of basic commodities and thus reducing farmers' purchasing power.

Households also experience individual shocks, such as the illness, death or migration of a family member, job loss and/or the theft of personal property, as highlighted by some of my life histories. For instance, Alima and Zeinub are young women in their late 20s and early 30s respectively, and they were abandoned by their husbands who migrated to South Africa. Alima had her property grabbed by her in-laws following her abandonment by her husband. Both have not been divorced, have children to look after and are struggling. They feel stuck and cannot move on yet their husbands do not take care of them and the children anymore. Some of the shocks they are experiencing are slow-acting, for example soil erosion and climate change, while others are fast-acting like floods. Some shocks originate from within Mphunga Group Village and its surrounds but most are from outside Mphunga community, for example, the soil erosion that is causing siltation of the Lifidzi River and is blamed on upstream communities in Dedza District that adjoins Salima District.

According to informants in my Core Reference Group, the old site of Mphunga Group Village was less accessible and hence tended to receive less support from government and NGOs than the neighbouring group villages of Kandulu and Sani Maganga that are located closer to the main access road that leads to outside markets. As a result, the degree of self-sufficiency among farmers was considered relatively high. However, due to the regularity of flood occurrences in recent years, Mphunga Group Village has become increasingly dependent on relief aid and its leadership is becoming more skilled at looking for development assistance opportunities, and negotiating with officials for external aid. The support received from long-present NGOs such as Action Aid, Red Cross and COOPI can be used to leverage further support, thereby generating a more attractive working context for development organisations in comparison to other villages.

The perennial relief aid is, however, causing a dependency syndrome among farmers who now expect donations at the slightest sign of floods, according to Chikasu (Interview, 2013). To this extent whenever floods occur, farmers start enquiring from both government and NGO officials when they will receive aid and the specific nature or quantity of the aid they may receive. This is often irrespective of the impacts of the floods or the losses they suffer from such floods. Farmers from all wealth clusters expect donations, which requires that they play helpless flood victims and in the process conceal any self-help capacity they may have at their disposal. This is arguably some form of agency on their part in order to influence aid distribution. In the words of "Professor" (Interview, 2013) that I spoke to:

Floods do not select their victims and so we are all entitled to the donations from our government or the NGOs, irrespective of what assets or wealth one may have. In any case, when floods come I am the first to assist my neighbours or they approach me for immediate assistance like food, utensils and clothing, before any donors arrive with their assistance.

A number of the farmers I spoke to privately agreed with this sentiment, even though they would not say so publicly. As could be expected, better-off households generally own more assets and are better positioned to withstand and recover from shocks in comparison to poor farmers. They are more likely to find *ganyu* labour, access loans and secure help from their social contacts when they need them. As noted by Carloni and Crowley (2005), poorer households with fewer or no assets (marketable skills, land, savings, livestock education and labour) tend to be far more exposed to the extreme weather shocks than better-off households that have more assets. The longer and more frequent the shocks and stresses, the more the poor households are forced to sell off whatever assets they may have in order to buy food and other basic needs, further depleting the household asset base until household members have only their labour to sell for survival. For the very poor households, hunger and failing health can mean that their capacity to labour becomes so weakened that they are unable to sell it at critical times.

In this context community-based social safety mechanisms and informal social insurance mechanisms such as funeral clubs, along with household social networks involving kin groups, friends and neighbours become significant sources of support (Household survey, 2013; Life-history interviews, 2013 and Core Reference Group Discussions, April 2013). According to Morse *et al.*, (2009:5): “The social resources (for example, networks, social claims and relations, affiliations and associations) that are held and exchanged among and between people and external experts are effectively social capital.” The next chapter looks more directly at social clubs and networks and the services offered by a range of NGO, CBO and government departments in supporting farmers with relief aid and disseminating information about climate change and disaster risk management (among other measures). The coping and adaptation strategies deployed by the farmers in response to climate change are discussed in more detail in Chapter 8.

6.5 Conclusion

Mphunga farmers, who trace their origins back to what is now the DRC, are predominantly but not exclusively Chewa-speaking and turning increasingly to Islam in terms of their religious affiliation. Although they follow a matrilineal system, men still play a dominant role in the control of productive assets and income as well as key decision-making within the household and in the local community’s socio-economic and governance affairs. The majority of the population is poor or very poor in terms of

their own assessment of wealth ranking, and education and literacy levels are low, particularly among women. Susceptible to mounting pressure on their livelihoods over decades, migration is a significant link between the group village and the outside world, as farmers are displaced or move outside Malawi (primarily to South Africa) to escape local livelihood challenges, declining agricultural production and deepening poverty. The recent relocation of the group village to neighbouring villages as a result of repeated flooding has added to these pressures and led to social tensions with their hosts, who label them as refugees.

To sustain their livelihoods, farmers rely on a suite of coping and adaptation strategies, including *ganyu*, gleaning, over-fishing, farming on ecologically sensitive riverbanks and wetlands, engaging in petty trade and falling back on informal social networks. Overall, many farmers are experiencing a downward trend in their capacity to cope, whilst a few have been able to marshal their assets and individual attributes to advance themselves, often using crisis conditions precipitated by the extreme weather conditions to do so. The key stressors cited by my respondents revolve around the internal displacement of the 13 Mphunga villages to the neighbouring group villages in response to recurring and extreme flooding in the decade preceding my study, along with the associated disruptions to their livelihoods and loss of and damage to property. In order to support themselves in times of crisis, farmers are turning to NGOs and agencies offering relief aid, a response seen by some of my informants as entrenching a donor dependency syndrome and thereby further undermining resilience in the community.

Chapter 7: Social networks, social support and social capital

Given my interest in social capital, the nature and extent of social networks is an important component of my study, particularly those networks involved in ad hoc relief or more programmatic services aimed at building community resilience in the face of extreme weather events and climate change. This chapter reviews my findings on social organisations and networks in Mphunga and the role of social capital in the livelihood strategies of individual farmers.

For the purposes of my analysis, I have organised the more or less formal organisations and associations that are active in Mphunga into two broad categories. The first, addressed in section 1, covers local clubs such as farmers' clubs and funeral, savings and sports clubs, as well as more informal associations and networks that are informed by local cultural norms and values and also play an important role in their members' livelihood strategies. Here the role of trust and reciprocity, that have been identified as important dimensions of social capital in my discussion in Chapter 3, can be seen at work. The second category, addressed in section 2, comprises formal organisations from outside Mphunga Group Village and this list includes NGOs, international donor organisations, government structures, faith-based organisations and the media. In section 3 I consider the importance of social capital as reflected in the life histories of ten selected farmers with different livelihoods portfolios.

7.1 Local village-based clubs and informal networks and associations

There are numerous social clubs (known locally as *zvikumu*) and associations in Mphunga Group Village, varying in terms of their formality, size, primary purpose, structure, membership, rules and the length of time that they have existed. Some of the associations are transient, evolving to address a specific, short-term issue and then dissolving; others do not dissolve but become dormant only to become activate again when an urgent need or opportunity arises; yet others are established features of local social life.

The different clubs and associations found in the village address a spectrum of concerns, including economic and community development, social support, spiritual wellbeing, cultural practices and entertainment and recreation. In practice, many clubs, associations and functions tend to overlap, making it difficult for outsiders to distinguish them apart. According to Mlanga (Interview, 2013) and Simpson (Interview, 2013) the farmers' solidarity bonds and relationships have been strengthened by their shared experiences of livelihood vulnerability arising from their displacement by the floods and their negative labelling as refugees or foreigners in their host communities, Kandulu Group Village and Sani Maganga Group Village. Culturally-based social institutions involving family or Clan Heads,

initiation groups and funeral clubs sanction what is deemed as culturally acceptable behaviour, regulate unacceptable conduct and arbitrate conflicts.

While the more formal clubs tend to be registered with the relevant government authorities, have defined membership lists and rules or a written constitution, and maintain records, the less formal ones use oral systems of administration that rely on social agreements, memory, trust and personal witnessing. Informal systems accommodate both literate and illiterate farmers and are financially cheap to operate. The farmers engage with both categories on multiple levels. Gender, familial ties, personal commitments around neighbourliness and solidarity, religion, as well as an individual's age and socio-economic status are all factors shaping expectations of membership and determining the extent of the relationship and the nature of the support sought and offered. Social sanctions are also important for maintaining compliance with local norms, values and customs. For example, farmers who do not make food, firewood or labour contributions or attend funerals within their clans and immediate villages are summoned and or fined by their respective Clan Head and Village Head. Chief Chadza (Interview, 2013) believes that:

One risks being ostracised and excluded from community life when they do not show sympathy and give support during the two most important occasions in life – birth and death. Then what kind of a person are you when you do that?

Working with the data that I collected on a wide range of community-based activities found in Mphunga Group Village during my fieldwork and based on my understanding of their operations, I have divided these local village-based structures into two categories: more formal clubs and less formal associations. The categorisation exercise was not an easy one because the distinctions between the two categories are not always clear, even to the members themselves. Most serve multiple roles and purposes, depending on the respective members' agreements, situations and needs at a given time. All, however, can be seen as having the potential to enhance their members' social capital.

7.1.1 Formal clubs and organisations

This category comprises a wide range of organisations, as the following list of examples show. Although there are examples of cross-gender and cross-age clubs, in particular among those focused on economic development, such as farming and loan and saving clubs, most social clubs are gender and age specific, that is they have male- or female-only membership and target either adults or youth. Below follows a brief overview of selected clubs; the list is by no means definitive but gives an indication of the most prominent clubs active in the area during my fieldwork.

Civic organisations

The Inkhata Community Policing Forum which comprises young, able-bodied men who have been selected by Chief Mabwela (a local Village Head) to play a role in enforcing village by-laws, monitoring crime and maintaining community safety against intruders, strangers and robbers. The Forum plays an important and effective role during against issues of child kidnapping and monitoring illegal activities and alerts the Village Heads. For example, when the village experienced a drought in 2012/2013, a by-law not to sell maize to buyers outside Mphunga was passed by the Village Heads Council and the Forum apprehended some offenders that were brought to book. Although gambling is an illegal activity by Malawian law, but the Policing Forum has never arrested the gamblers, according to Chief Mabwela (Interview, 2013). This has to do with the fact that gambling enforcement is not under their jurisdiction and is a responsibility of the official arms of the law such as the police.

Economic development and livelihoods support

A range of clubs promoting sector-specific and general development interventions are active among Mphunga farmers. Thus the Kanthunkama Farmers' Club, the Mphunga Rice Farmers Group and the Chitukuko Irrigation Club are open to all community members who can afford the subscription fee. Members support each other with access to farming inputs, extension advice, new technologies and markets. They also self-organise and host field days as well as approach experts for guidance and farming advice, and bulk purchases of inputs. The Takondwera and Tadziwana Savings and Credit Clubs help members build up savings and facilitate their access to credit; these clubs are open to both adult men and women who can afford the joining fee and monthly subscriptions.

During droughts, the irrigation club makes a difference for its members who manage to produce food for a few months' supply, and the savings and credit clubs help members access finance during critical times such as illness, funerals and initiation ceremonies. Zeinub and Harry received assistance from their savings club and farmers' club respectively when they needed it the most in 2012.

Health and social services

A club by the name of Safe Motherhood offers voluntary antenatal support towards new and young mothers, including guidance on childbirth and advice on baby vaccinations and motherhood. They are open to anyone who needs such support; elderly women with experience of childbirth and child-rearing render the support, at times with advice from the nearest clinics and Mtchoka Hospital. The Safe Motherhood Club has helped several new and young women who give birth at home, and Alima chose to deliver all her children from home after her pleasant experience from the club members who have

assisted her. Asefu's youngest child was saved following a vaccination that Janet, a member of the Safe Motherhood, advised and administered for her.

The Tiyamike Disability Club is a special interest group that mobilises material resources from several sources, including government, for the welfare and needs of disabled people, and advocates for the rights of disabled people from Mphunga. The club is open to all, male and female, young and old.

The Shielah Allah Boys and Shielah Allah Girls Clubs target school-going learners, in their teens, who are of Muslim faith. These are multi-purpose clubs that share spiritual teachings and advice on personal matters such as planning for initiation ceremonies, puberty and related issues. but also undertake charity work in the village, for example, gathering firewood and drawing water for disabled, sickly and elderly people as well as helping the families of members during difficult times such as funerals. They also hire out their labour for piece jobs mainly within Mphunga to generate income for pocket money. The clubs routinely help disabled and elderly members of their community with water and firewood collection, and during funerals. Janet received help from both clubs when she was drawing water for constructing her sister's house in 2013, otherwise her family would have spent lots of money on hiring out labour.

Educational

The Chitsanzo and Chinyama Adult Literacy Clubs are involved in adult education and the teaching of writing skills. While the Chitsanzo Club is open to men and women, the Chinyama Club is only open to illiterate and semi-literate adult women; it runs with material support from SAWEG and Action Aid. Women's rights and experiences are foregrounded in its teaching programme. The Chinyama Adult Literacy Club has enrolled more than 21 women for adult learning classes over three years, and two of whom were now able to read, write and gained confidence to stand for office in their political parties. Margret and Janet are instructors at the club and Zeinub was planning to return to formal school and sit for a Form 2 public examination following the tutorship she was receiving from Margret.

Cultural

Gule waMkulu is a secret society open to initiated men, both young and old, who perform ritual dances practised by the Chewa of Malawi, Mozambique and Zambia. This club promotes solidarity among its male members, who are responsible for initiating young men into adulthood and performing the *Gule waMkulu* dance after the initiation. This is usually performed after the winter harvest in July, and also at funerals, weddings and the installation or the death of a chief. The dancers wear costumes and masks. Of my life-history respondents Janet, Chief and Professor's families are active members of *Gule waMkulu* which helped Janet's family with funeral rights and related ceremonies following her uncle's

passing on in 2013. During my field study, Professor presided over the funeral rites and ceremonies at Janet's family and for which he charged for his services.

Recreational

The Baluya Boys Football Club provides sporting entertainment for the local community, and an opportunity for its members to showcase their football skills. It is open to boys from about 12 years and above who are interested in playing soccer from Mphunga community. The football club provides entertainment value to spectators during matches that are played on Sundays when the farmers are not working their fields. Soccer match contestants are sometimes held with competing teams from other group villages, and this could be for a trophy. Both men and women often watch the soccer practice sessions that often take place at the end of day during the week, as well as competitions with other teams.

7.1.2 Less formal social associations and other support networks

In addition to the clubs identified above, less formal associations and support networks that draw friends and relatives together also feature prominently in the village as important sources of reciprocal support. Often their functions overlap with those provided by the more formal organisations, inasmuch as they can also be involved in the exchange of help and labour. They link social groups that share similar cultural and personal values.

An example are the numerous informal associations that are formed by small circles of trusted family and or close friends (usually between four and 10 members) for a variety of social support and practical needs purposes, including moral, spiritual support, advice and guidance on personal and family issues.²⁰ The support ranges from pooling labour to helping members deal with illness, domestic violence, funerals, weddings and initiation ceremonies. Some come together to hire out their labour to non-members for a charge; the income generated is then saved and split between members or used for a collective purpose. Membership is by invitation to trusted friends or family members and is often based on long standing associations that date back to childhood days. Some groups may be open to both men and women but generally membership in most is gendered, with women's groups particularly prominent.

Informal farmer-to-farmer interactions at household and larger scales can be important sources of advice and exposure to technological and other innovation, such as new seed varieties. In these

20 Tiyetse, Chi2-2, Eninyumba, Chiwopa, Chinzake, Takumana, Kabwerebwere Clubs

associations farmers exchange information about extreme weather events and become conduits for new ideas around climate change. These on-going relationships are very important for deepening trust between neighbouring farmers and feed into the more formal farmers' clubs already described.

Women and men's Funeral Support Groups are often formed at the behest of traditional leaders to cushion bereaved families. They provide material contributions (firewood, maize meal, money) as well as labour and spiritual and emotional support during funerals to any bereaved family within Mphunga Group Village. These groups promote social cohesion and the values of reciprocity within the community.

A very important social network is the migrant network that links past and current migrants as well as those planning to migrate to the commercial estates or abroad. A strategic meeting place is the 'paLabour Centre' that is situated along the village main road where male farmers hang out and relax while scouting for *ganyu*. There are no formal meetings but the network offers information around securing passports and visas as well as contacts of potential hosts and emotional support for new arrivals. Board games (*bawo*) among the men frequenting the 'paLabour Centre' serve as a platform for both relaxation and networking. Although the network is open to men and women, it is usually men who frequent the Centre and women access the network through secondary, male sources, and mainly for purposes of *ganyu*. Farmers looking for *ganyu* labour approach their networks directly or send word to the Centre. Many farmers, both male and female, have secured *ganyu* through the Centre. Between 2010 and 2013 Harry, Asefu, Saison, Alima and Zeinub have secured *ganyu* through advertisements posted at the Centre.

Less public are the associations of gamblers that also draw adherents together in what is an illegal activity. Gambling (*njuga*) is illegal outside of licensed facilities in Malawi. For this reason, those who engage in gambling (using money, grain or property), play it under cover and disperse when people unknown to them are approaching. They gamble to raise funds or mobilise grain for food but also for entertainment. They meet in the homes of fellow gamblers and often use a secretly coded language to communicate in a way that non-members will not follow. Both adults and young boys and girls can play regularly or once-off to meet an urgent need such as cash.

Elderly women involved in the brewing and selling of illicit beer are another example of more clandestine associations that are also both gender and age-specific. Within their network, members communicate closely about trading days, to avoid competition; they also share information about bad debtors, violent clients and the presence of police patrols.

Over time some informal associations are becoming more formalised through legal registration and the opening of bank accounts. Sometimes this has been a result of the initiative of the farmers themselves but often it is outside experts, usually from NGOs but also from the government, who provide the material support and training required to formalise these structures. Examples include the Takondwera Village Savings Club, the Chinyama Women's Adult Literacy Club and the Tiyamike Club for the Disabled (Core Reference Group Discussions, 2013; Mlangi, Interview 2013). There are also local produce commodity associations aimed at helping farmers with quality control and the marketing of their farm produce that were formed as a direct result of the intervention of outside expert organisations such as Action Aid, COOPI, Land O' Lakes and Red Cross interacting informally with farmers.

The various local networks discussed above play an important role in supporting farmers with flood and drought-resistant farming technologies, extension services and inputs, as well as assisting with evacuation and disseminating information about disaster risk management. Through informal groups, clubs and associations, farmers share new information about climate change and farming culled from a range of sources that include radio, experts and external organisations.

7.2 External organisations and expert networks

In this section, I discuss the formal and mostly externally-based organisations active in Mphunga Group Village that I have organised into 11 different categories on the basis of their formal membership, legal status and identity. (See Appendix 10 for details). The categories are:

1. International NGOs such as Action Aid and COOPI
2. Community-based organisations formed by and reporting directly to the international agencies, such as the River Alliance Committee formed by COOPI
3. UN agencies
4. International donor agencies
5. National NGOs such as the Red Cross Society of Malawi
6. Faith-based organisations
7. Political parties
8. State agencies
9. District level government
10. Media
11. Private companies supporting local relief and development projects.

These organisations are where the “experts” with whom Mphunga farmers interact in relation to climate change are located. They provide support services for local farmers around farming, livelihoods

diversification, natural disaster and risk management, relief aid and community development and in the process address social concerns related to gender-based violence, the promotion of human rights and adult literacy. They invariably communicate their messages through intermediaries in the form of fieldworkers based within the district or via selected village-based lead farmers and community champions that are called “multipliers” – so called because they reproduce and propagate expert knowledge. These local intermediaries are appointed by the external organisations, often with the approval of the village traditional leadership, to act as conduits of information and demonstrators between the external organisations and local farmers.

Although their specific focus may vary, these external development organisations share certain generic features. They are formally registered in Salima District or in Malawi; they have formalised structures and their officers are salaried or receive an allowance. Some of the organisations listed in Appendix 10 do not have deep and meaningful relationships with the farmers beyond responding to natural disasters with relief aid, for example the Livingstonia Beach Hotel, the Umodzi Foundation and the Assemblies of God Relief and Development Services. Others that have engaged the farmers through programmatic work have developed far more meaningful and targeted support relationships with the farmers.

Prominent here are Action Aid, the Red Cross, COOPI and Land O’ Lakes, which are discussed in more detail in the next section, along with a district-based women’s group, the Salima Women’s Action Group (SAWEG). These NGOs work closely with one another and with other multilateral organisations, such as the World Food Programme. From 2011-2016 DfID, Norway and Irish Aid were jointly supporting the “Enhancing Community Resilience Programme” in Malawi (worth £14 million) and working through a variety of NGOs that included COOPI.

7.2.1 Action Aid

Action Aid is an international non-governmental organisation working against poverty and social injustice worldwide, often through local partner organisations, with a presence in over 40 countries. It was founded in the United Kingdom in 1972 and its international head office is located in South Africa (<https://www.actionaid.org.uk/>). It has been active in Malawi since 1990, working in 12 districts to improve long-term access to food, water, healthcare and education (Mlanga, Interview, 2013). It directs its support towards smallholder farmers and groups it has identified as particularly vulnerable such as women and children, and often works with local partners to support women’s forums and tackle violence against women and child marriage.

At the time of my primary fieldwork Action Aid was the longest serving NGO in Mphunga Group Village. It commenced operations in Mphunga Group Village in 1996 and was active in the area with

community service delivery and flood disaster risk management interventions until December 2013. At that point, after 18 years of supporting local farmers, especially women (Mlanga, interview 2013), the organisation moved out of Mphunga Group Village in order to serve other communities in neighbouring Dedza District. By that stage, this organisation had invested more than any other aid organisation in projects promoting Mphunga farmers' access to irrigation, farm inputs, agricultural diversification, institutional development and the building of grain warehouses. The organisation has also been behind institutional development in support of community-based organisations focusing on women's property rights, empowerment through literacy and savings schemes and tackling gender-based violence. The women's empowerment, property rights and gender component of its work was taken over by SAWEG, an organisation whose funding and formation was facilitated by Action Aid.

Action Aid has adopted a rights-based approach to community development, gender rights and women's empowerment (Musa, Interview, 2013). Through its various networks, it identified women community champions and assisted them in gaining exposure to wider debates through supporting their training activities and sponsoring their attendance at various meetings and international conferences. For example, Action Aid supported Janet, one of my "life-history" farmers, to attend the Climate Change Conference event in Durban in 2011 (Mlanga, Interview, 2013). Action Aid has also sponsored children's education and built school blocks and teachers' houses.

Support for farmers has taken a number of forms, including relief aid and farm inputs following numerous floods. Action Aid has supplied farmers with treadle and engine water pumps to support irrigation farming, along with scotch carts and livestock to assist farmers restock and diversify out of crop farming following the disruption of their livelihoods by floods. The organisation also built a community grain bank storage facility for the three group villages of Mphunga, Kandulu and Sani Maganga (Core Reference Group Discussions, April 2013).

From 2008, the organisation embarked on disaster risk reduction programme in response to the constant cycle of floods and drought that was affecting Mphunga Group Village. It encouraged farmers to farm with more drought resistant livestock such as goats and donkeys and early maturing varieties of crop seeds (Core Reference Group Discussions, April 2013). It was also central to the Lifidzi riverbank stabilisation scheme where Mphunga farmers were engaged in a public works programme to reinforce the river's banks. These initiatives were favourably viewed by the local leadership. In the words of Chief Mabwela (Interview, 2013):

Action Aid has been our mother in times of need. They have been with us for a long time (18 years) and have provided us with livestock, grain banks, irrigation equipment and school fees

support for our children. We hear they will be pulling out soon to go to Dedza District and we are not sure how we will cope without them.

However, there were concerns that the long relationship of more than 15 years between Action Aid and the farmers was fostering the dependency syndrome pointed to in the previous chapter. According to one of their project officers, whenever farmers from Mphunga Group Village faced the smallest of challenges they made an immediate request for assistance from Action Aid and expected to be helped ahead of other group villages that were also in need of assistance within Salima District (Mlanga Interview, 2013).

7.2.2 Cooperazione Internazionale (COOPI)

COOPI is an Italian NGO that started working in Mphunga Group Village in 2008 (Simpson, Interview, 2013). It has also focused on the reduction of risk from natural disasters through the stabilisation of the three major flood-prone rivers (Lifidzi, Linthipe and Lingadzi) that flow through the area, including Mphunga (Zaindi, interview 2013). To this extent the organisation works closely with the Salima District Assembly and village-level Civil Protection Committees and other NGOs such as Action Aid and Red Cross Society that are concerned with risk reduction in relation to the threat of natural disasters. In partnership with the International Fund for Agriculture Organisation (FAO) and Christian Aid NGO, COOPI has coordinated a community-based flood early warning system project called Disaster Preparedness of the European Commission (DIPHECO). The project is managed collaboratively with the Civil Protection Committees from the 22 group villages drained by the three major rivers mentioned above. The organisation serves on the Civil Protection Committee.

In 2010 COOPI introduced a system of community-based village lead farmers (also referred to as village-based informal extension workers or “multipliers”), to coordinate its farmer support activities and complement the government agriculture extension officers in Mphunga Group Village. It has supported women’s village savings and loans clubs (Chikasu, Interview 2013) and has also been instrumental in empowering the Mphunga Group Village Civil Protection Committee with flood evacuation skills, and providing equipment for use during flood evacuations (Core Reference Group Discussions, April 2013). Although formally the Village Civil Protection Committees fall under Salima District Assembly, the structures are synonymous with COOPI which plays a key role in developing their capacities, providing them with materials and coordinates their reporting. The NGO also provides farmers with information about extreme weather events, for example pamphlets on climate change in Chichewa and English languages, and capacity-building of village civil protection committees that implement the community-based flood early warning system under the DIPHECO project through training, provision of bicycles, mobile phones, torches, gumboots, rain gauges among Lifidzi river-line

communities. In 2013 COOPI was implementing a project addressing a range of development issues, including community nutrition, farming diversification, natural resource management and the promotion of energy-efficient stoves and solar products.

The organisation is popular with farmers for empowering them with information about disaster risk, climate change, providing farm inputs aid, coordinating evacuations during floods and for providing the civil protection committee with equipment. In the words of Zex (Interview, 2013):

COOPI provides us with training, updates and information about floods and disaster risk management. I have gained a lot of knowledge and skills through serving on the Village Civil Protection Committee. The community-based flooding early warning system that gave us training under COOPI's DIPHECO Project has been a life saver for my village. This has been particularly the case for the disabled and elderly community members who are easily forgotten when everyone flees from floods, especially when flooding occurs at night.

7.2.3 The Red Cross Society of Malawi

The Red Cross Society of Malawi serves on the Salima District Civil Protection Committee. It worked directly with Mphunga farmers from 2007 to 2012, during which period it promoted irrigation technology (Kufandiko, 2013). It formed 10 irrigation clubs that promoted the use of treadle water pumps as an important climate change adaptation strategy by enhancing prospects for winter farming (Core Reference Group Discussions, April 2013). The organisation also supplied the poorest farmers with farm inputs in the form of maize and bean crop seeds and fertilisers and farming extension advisory services. According to Kufandiko (Interview, 2013), as part of its promotion of climate change adaptation strategies the organisation has also introduced the keeping of ducks as a food source for households, because they are better able to cope with floods than other forms of poultry, given their ability to swim during floods. The organisation also supported the planting of reeds along the Lifidzi River banks to prevent flood water from overflowing the river channel (Core Reference Group Discussions, April 2013).

An innovative project that was particularly well received locally involved the training of farmers in first aid and flood early warning awareness, through a photo story project and community video filming (Core Reference Group Discussions, April 2013). Whilst the concept of climate change in the vernacular (*kusintha kwa nyengo*) is not new to the farmers, it was popularised by the Red Cross Society's use of photo stories and drama performances to raise public awareness as well the making of a video film about climate change awareness) between 2007 and 2012, in which local farmers were directly involved (Kufandiko, Interview 2012; Core Reference Group Discussions, April 2013). (See

also Suarez, 2009). A follow-up video film was shot by the same organisation at the end of 2013 on request from young farmers, aimed at showing how the community was coping with the impacts of climate change after the public awareness campaign of 2010. Chief Mabwela (Interview, 2013):

If it were not for the Red Cross, I would have not been involved in shooting a film in my life time. Can you imagine me with a video camera? The video that we were involved in shooting, the photo stories and the performances around climate change awareness were instrumental in helping us to understand the issue of climate change.

According to Janet (Interview, 2013):

The experience of shooting a video with the white people from Canada will stay with me forever. When I tell my friends from other districts outside Salima they do not believe me. I wish I had been filmed in the process of shooting the video and kept a copy to show to them.

Farmers received the information and training from Red Cross Society of Malawi with keen interest with use of the term “climate change” in everyday speech, rather than the vernacular term (*kusintha kwa nyengo*), dated to this event. The Red Cross Society personnel included a Belgian student and two Canadian colleagues who facilitated the project’s communication aids. The presence of white personnel in a deep rural village like Mphunga had a notably positive impact on the interest in and reception of climate change from the community, according to a number of my respondents. This was particularly the case with young people who were more interested in the communication technology that was being used and associating with the white personnel than in the information on climate change. However, the use of communication aids such as video, drama, photo stories and branded clothing played a significant role in the success of the project and heightened reception of climate change information. The Red Cross Society continues to receive requests from youth for similar follow-up training after the first training (Kufandiko, Interview, 2016).

7.2.4 Land O’ Lakes International Development

Land O’ Lakes is a United States of America-based agri-business company that has been running a Food for Progress (FFP) small enterprise development project funded by the United States of America International Aid (USAID) since 2011 (Mthobwa, Interview 2013). The project aims to reduce poverty and improve rural livelihoods through promoting crop commodity associations as well as introducing farmers to small livestock farming as a way of diversifying from crop farming. The project is supporting farmers to grow rice commercially by facilitating access to certified seed, offering rice farmers advisory services and finding viable and fair markets (Core Reference Group Discussions, April 2013 and

Mthobwa, Interview, 2013). However, the first project they embarked on was disrupted by the combination of floods and dry spells that characterised the 2012/2013 farming year. This wiped out many farmers' plantings, leaving them in debt for the rice seed they had bought on credit from Land O' Lakes and thus worse off than before.

Climate change issues were indirectly addressed through these interventions. Thus the choice of crops was informed by consideration of climatic forces, as was the emphasis on diversifying farming investments into more climate-proof activities like cassava farming and small livestock (Land O' Lakes FfP project concept note, 2010). However, according to my respondents, no significant knowledge was imparted to them with regards to the causes of climate change or extreme weather events (Core Reference Group Discussions, April 2013). They claimed they had already learned from a neighbouring village about mixing rice with cassava as a companion crop, to cushion any extreme weather eventuality, and they were very negative about the 2012/13 season because of the debts they incurred. Harry (Interview, 2013) remarked:

I do not understand why Land O' Lakes would not write off our debt. We are not responsible for the failure of their rice farming experiment that has now left us indebted. The dry spells and flooding were there for all to see, and so I think the Government of Malawi should intervene and have the debt from this NGO cancelled.

Land O' Lakes was still quite new in Mphunga Group Village at the time of my fieldwork and thus it was too early to determine its longer-term impact. Yet while many rice farmers had suffered from the disastrous season in 2012/13, they were embracing the new knowledge they were receiving about growing rice, and their access to new improved varieties of rice. The Mphunga Rice Farmers' Group, which was established by Land O'Lakes in 2012, comprised several clubs with a total membership of 180 farmers (Harry, Interview 2013).

7.2.5 Salima Women's Action Group (SAWEG)

SAWEG is a membership-based organisation that was formed in 2005, with institutional support from Action Aid, in response to gender abuse and violence in the Salima District (Kaambankadzange, Interview, 2013). Its main focus is countering what are regarded as adverse cultural practices that are abusive towards women and girls, such as the practice of wife inheritance and limitations on women's right to property. It has supported women in pursuit of political office as councillors or Members of Parliament with logistical and material resources. SAWEG's role has been largely one of advocacy, lobbying and raising public awareness. However, it has also supported village savings and loan clubs, and, in collaboration with experts from external NGOs, offered women training related to agriculture

and extension advice around dealing with climatic and adverse weather impacts, for instance through practising mixed cropping (Kaambankadzange, Interview 2013). In partnership with the Tuesday Trust, SAWEG also supported women from Mphunga Group Village with farm inputs and equipment following the devastating floods of 2009/2010 according to Janet (Interview, 2013) who was very positive about SAWEG's contribution to the empowerment of women:

SAWEG and Action Aid have done a lot to support our women's clubs, especially the adult education club and village savings and loan clubs. We still have some work to do and one day a woman from our village will run for political office. The seeds have been planted already, give us a few years and see.

According to Kaambankadzange (Interview, 2013), SAWEG has been most effective in its non-farming programmes aimed at enhancing women's rights. However, its agricultural training, adult literacy projects and support for women's farmer groups and clubs are gaining significant traction in Mphunga Group Village, due to the significance of these activities in supporting livelihoods.

7.2.6 The relationships between external organisations and local village-based groups

Whilst the support and programmatic work of the above organisations may be needed in Mphunga, there tends to be poor coordination and competition for relevance among them. Consequently, there is unnecessary duplication in some of the services, for example around flood evacuation, farm inputs, and disaster risk reduction information dissemination. The Salima District Assembly is supposed to monitor and coordinate the services offered by these NGOs, but it is poorly resourced to play this role effectively and it tends to depend on some of the better-resourced NGOs to play this coordination role; thus COOPI has effectively become the lead agent in working with the village Civil Protection Committee. While the NGOs' work programmes are mainly focused on livelihood support, there is often confusion about the entry point and whether to address systematically the causes or the symptoms of vulnerability to disaster risk and extreme weather events. As a result, there is pressure on NGOs to address high impact issues that draw public and media attention, like flood evacuation or donating food relief aid and equipment during events officiated by public officials.

In terms of the sustainable livelihoods framework, the NGOs are playing important roles that influence the vulnerability context in which farmers find themselves and impacting on local livelihood strategies and outcomes as well as transforming local structures and processes. For example, they are all promoting ideas around livelihood resilience through improving the institutional response capacity of the Salima District Assembly and the Village Civil Protection Committee. The NGOs are implementing projects aimed at enhancing agricultural diversification. They have also launched local capacity-

building initiatives among local CBOs and farmers' clubs, including training aimed at elevating the position of women and amplifying the voice of the poor as well as supporting participatory policy processes to increase accountability. However, because of poor coordination, project outcomes are at times incoherent and in conflict with each other – for instance, the pursuit of income-generating projects may come at the cost of environmental sustainability, as seen in agricultural intensification activities on wetlands.

For these reasons, Long (2001) has called for much closer attention to context on the part of experts (in this case field extension officers, the researcher and policymakers), and he emphasises the importance of reflecting on the consequences of their work for less powerful groups and individuals in society. For example, when assessing interventions or social practices, practitioners ought to ask themselves, “This works for whom?” Who benefits and who loses from the existing arrangements and structures? The social and gender appropriateness and effectiveness of the different technologies being introduced by the NGOs in the context of poor and semi-literate farmers in Mphunga should be independently monitored to protect the interests of farmers. This is particularly so because the interface between experts and farmers is informed by different interests and knowledge systems based on power differences and hierarchical relationships. However, the Salima District Assembly and related government departments are not well-resourced to play an independent monitoring role.

Many investments by NGOs have had a positive livelihood impact and enhanced families and community resilience against poverty and floods. At the same time, however, there is evidence of growing donor dependency among the farmers who receive relief aid from the range of NGOs and government following the annual floods, which has also manifested in competition for assistance with neighbouring group villages such as Sani Maganga and Kandulu. Some of the farmers that I spoke to privately expressed the view that the relief aid could be seen as a positive impact of the floods, comparable to the fish that get washed ashore and the deposit of rich silt along the riverbank and in their wetland gardens during and after floods. I also observed that because they perceive themselves as victims of the floods, they are beginning to view external assistance in the form of relief aid as a right; this is especially marked among the youth and poorest farmers.

These themes are further developed in my discussion of the life histories that I collected from 10 respondents, which follows below.

7.3 The significance of social capital in farmers' livelihood strategies

As outlined earlier in Chapter 4, my research methods included in-depth interviews with 10 farmers whose life histories allow for a deeper understanding of how weather shocks and poverty dynamics unfold in individual lives, and the role of gender, social status, religion and class in mediating their life experiences. Their personal lives also reveal the significant role of social capital in the ways in which they have coped with the impacts of extreme weather events. Turner (2007:410) has noted that “in order to better understand the causes, connections and consequences of social network and social capital processes, it is important to closely study the everyday lives of social actors.” Exploring the ordinary interactions of the 10 farmers within their different contexts made me realise how important issues of trust, empathy, unpaid forms of support and reciprocity are for them in negotiating daily life. My engagement with these farmers' stories thus illuminated the “diverse complexities of reality beyond the authoritative versions of experts who homogenise individual experiences” (Kothari and Hulme, 2004:10).

The use of personal life histories from the above farmers also raised a number of methodological and conceptual issues around memory, personal interpretation, social context and the relationship between the past and the present in individual lives, as well as the interconnectedness between individual narratives and their wider social context. As Portelli (1991:51) has noted, “memory is not a passive depository of facts, but an active processing of meanings.” In talking to me, the farmers delved in and out of their pasts, interpreting events through sharing and omitting certain details from their stories. None of them narrated their stories in strictly chronological order. The significance of particular incidents and experiences in the farmers' lives was marked by different voice tones, gestures and facial expressions from those used for more routine events.

For example, Zeinub opted to discontinue the interview on one occasion, when she was talking about how her husband had abandoned her. She felt too emotional. Margret was filled with memories of her late husband as she talked about she struggled to look after her two youngest children following her husband's death. Table 7-1 below provides a summary profile of each of the 10 farmers (identified by pseudonyms); a more extensive profile is found in Appendix 3.

Their ages ranged from late 20s to late 70s and they were spread across the four wealth clusters. All demonstrated intimate knowledge about the village's social history and livelihoods dynamics. They were well acquainted with the community's institutions and social networks, socio-economic issues and challenges, and prominent role players. The dynamics of Mphunga farmers' relationships with neighbouring villages, particularly with Kandulu Group Village, were also well-known.

Table 7-1: Summary of life-history respondents

Name	Age	Gender	Marital Status	Wealth Ranking	Education	Major sources of income
Alima	Late 20s	Female	Separated	Poor	Form 1	Crop farming, <i>ganyu</i>
Zeinub	Early 30s	Female	Married	Poor	Grade 7	Crop farming, <i>ganyu</i> , family
Margret	Early 50s	Female	Widowed	Poor	Form 2	Crop farming, paid piece work from local NGOs and CBOs, small knitting business
Janet	Mid 40s	Female	Married	Better off	Form 2	Crop farming, allowances from travel, paid contract work from local NGOs – SAWEG, Action Aid, Ndindi Resource Centre
Harry	Early 30s	Male	Married	Better off	Form 4	Crop farming, <i>ganyu</i>
Asefu (VDC Chair)	Mid 40s	Male	Married in polygamy	Better off	Form 2	Crop farming, <i>ganyu</i> , loans (returnee migrant from South Africa)
Saison	Mid 40s	Male	Married	Better off	Grade 7	Crop farming, Government allowance for chiefs, <i>ganyu</i> , fish trading
Henry	Early 50s	Male	Married in Polygamy	Rich	Grade 5	Crop & livestock farming, grocery shop, grinding mill, cash and grain loan business
Chief	Mid 70s	Male	Married in polygamy	Better off	Form 2	Farming, Government allowance for chiefs, (ex-migrant worker in South Africa)
Professor	Late 70s	Male	Married	Better off	Never went to school, illiterate	Farming, <i>ganyu</i> , allowances from presiding over cultural events and ceremonies

7.3.1 Livelihood trajectories

In terms of the trajectories of their livelihoods the farmers could be divided into two groups – the majority who were on a downward trajectory, and a minority who were on what could be seen as an upward trajectory.

Downward trajectory

Eight of my ten life-history informants were on a downward slide into poverty, and these were three women (Alima, Margret and Zeinub) and five men (Harry, Asefu, Saison, Chief and Professor). While the three women ranked as “poor” (having previously been better-off) and the five men ranked as

“better-off” (though worse off than they had been previously), it was difficult for me to distinguish between the women and the men in terms of actual income. One significant difference, however, was the superior land-holdings of the men. This points to gender differentiation in the assessment of wealth between men and women in Mphunga, based on their different social roles. Another was the significance of a change in marital status for the affected women – the death of her husband in the case of Margret and abandonment by their migrant husbands in the case of Alima and Zeinub.

Alima’s husband left Malawi for South Africa in 1997 and remarried without divorcing her. She experienced asset-grabbing by her in-laws after this happened, which the Village Rights Committee did not contest, and the equipment necessary for a small bakery business she was running was stolen. After relocating to Kandulu Group Village, Zeinub’s husband left for South Africa in 2010 and has not returned. He rarely calls and does not send money for her and their three children. Margret, who lost her husband in 2006, was waiting for her “release ceremony” from her marriage as per Tonga tradition, before she could move on with her life. Whilst the culturally sanctioned waiting period for her “release” compromises her rights, she does, however, receive support from her in-laws who help with her children’s school fees and other needs. Overall, however, life became extremely difficult for the three women without their husbands, leaving them more dependent on others and reliant on *ganyu* to survive. The cumulative impact of events saw them lose their once better-off status and slide into poverty.

The extreme weather events of the past decade have not created but have compounded the problems facing this group. Eight of the informants narrated with nostalgia accounts of their previously prosperous farming activities in Mphunga, which they contrasted with their present unhappy and impoverished situation. They recalled that farming (rice, sweet potatoes and beans) was very successful due to the alluvial soils from the floodplain of Lifidzi River. Prior to their final relocation between 2008 and 2010/2011, they used to engage in temporary migration to higher ground in Kandulu Group Village every summer season, but were able to return to their homesteads at the end of the rainy season. First to relocate were Alima and Harry’s families who relocated in 2008, followed in 2009 by Janet, Saison and Zeinub’s families, then Asefu and Professor whose families relocated in 2010 and then Chief’s family relocated in 2011. Henry relocated in 2003 to set up a second home for his second wife next to his business premises at Kandulu Trading Post. Margret long settled where she was employed and only started leasing out land in Mphunga after she retired. With no savings and few assets to fall back on, the farmers are struggling to recover from the extreme weather events and experiencing being trapped in a cycle of poverty. Alima, Asefu, Harry, Margret, Saison and Zeinub were actively engaged in *ganyu* and reliant on other people and organisations for support. For example, Alima and Zeinub rely on their families for food, money and farm inputs whilst Saison relies on his brother who is in South Africa and Harry occasionally organised meetings and ran errands for COOPI and Action Aid for a small fee.

Harry, Asefu, Saison, Chief and Professor all described personal experiences of livelihood and property loss as a result of flooding, which they saw as responsible for the erosion of their savings and mounting debt. Although they could still be ranked as ‘better-off’ compared to other households, they reported occasional periods of extreme financial difficulty and an inability to recover former living standards as a result of the recurring cycle of floods and droughts. Having borrowed inputs for the 2012/2013 farming season, which was devastated first by floods and then by a long dry spell in February 2013, Asefu, Harry, Saison and Zeinub were struggling to pay back personal loans taken from Land O’ Lakes in 2012 for the rice seed they had borrowed. The sustained pressures from social and personal challenges were leading to changes in their livelihood strategies. Asefu and Saison described advanced plans to migrate to South Africa whilst Harry was undertaking agricultural intensification through mixed crop farming.

They draw on aid relief from local NGOs and the Malawian government in the form of farm inputs and supplementary feeding for school-going children, and also benefit from their membership in informal networks, clubs and relationships with family, neighbours and *ganyu* employers to varying degrees. The networks and clubs are of fundamental importance in securing their survival, especially for Alima, Janet and Zeinub. However, the farmers are caught up in an unending cycle of challenges. A critical difference between the farmers in the downward trajectory category compared to the two in the upward trajectory lies in the poorer portfolios of capitals that they hold and their consequent inability to combine farming with other livelihood strategies successfully like Janet and Henry.

Equally significant is the lack of effective and personal networking skills, access to credit and business acumen to engage in other livelihood strategies beyond farming. Harry and Asefu are strategically networked with local NGOs and serve on the Village Development Committee and the Village Civil Protection Committee but their involvement with these and related networks has not helped them explore alternative livelihood strategies. Their uncompetitive educational qualifications and lack of work experience and employable skills could be constraining them from selling any services to local NGOs at the level that Janet does. These barriers inhibit their access to NGO and CBO networks which could help them diversify their livelihood strategies like Janet has done.

Here the interplay between assets and context in shaping outcomes is complex. For example, Margret has professional skills and work experience (that is, human capital) as a community development worker while her comparatively higher level of education could potentially help her secure part-time work with a local NGO if she knew the right contacts to these networks and how to promote herself. She is, however, hampered by her domestic situation in which she is still tied to her deceased husband’s family. Harry also has a fairly high standard of education (Form 4) and plays an influential role as a multiplier and serves on many local structures, but lacks the working experience, knowledge and skills.

In terms of livelihoods analysis, the household asset portfolio for these farmers has shrunk dramatically since they were displaced by floods. Their physical, natural and financial capital portfolios are under extreme pressure. Chief, Asefu and Saison are leasing out their land to pay back debts whilst others, such as Margret, are selling whatever assets they still have. In this context the social capital that they are able to access through different social networks becomes critical for their survival. The arrangements for borrowing (and begging) between farmers and their families, neighbours and friends are complex, particularly in a context where they struggle to meet their debts when farming repeatedly fails them due to floods and dry spells. There were instances where old loans from family, friends and neighbours were eventually converted into ‘gifts’ by the lenders after Alima, Margret and Zeinub failed to pay back the loans. However, Henry is very careful to avoid bad debts through requiring his borrowers to sign for their loans in front witnesses and providing collateral security through their land. As already noted, Henry’s strict business approach has earned him a reputation as a ‘loan shark’ and greedy person driven by profit at the cost of community among some farmers.

The *ganyu* market is also infused with social relations. While it provides an opportunity for farmers to earn income or grain locally and on terms that are fairly clear, it also leads those who depend on it to neglect their own fields. In a bid to maximise on the *ganyu* earning opportunity, both adults and children are often engaged in *ganyu* to improve household food and instant income security. These households are not only unable to accumulate significant financial or physical capital through *ganyu*, but their human capital is compromised, including that of the children who miss out on schooling. This traps them in a cycle of poverty and further dependence on the *ganyu* providers. For the likes of Henry who provide *ganyu*, however, the arrangement is designed to favour them. The *ganyu* relationship brings to the fore what can be seen as what Du Toit and Neeves (2009) refer to as the ‘dark side’ of social capital, which is keeping some farmers poor.

Upward trajectory

The life histories of Janet and Henry in the ‘upward trajectory’ category provide an interesting contrast to the rest of the farmers. Despite their experiencing similar weather shocks and living in the same policy and institutional contexts as the rest of the farmers, they have both been able to improve their lives comparatively in material terms. The difference in their trajectories can be attributed primarily to their ability to deploy different forms of capital effectively and identifying opportunities and engaging in multiple livelihood strategies beyond farming.

In the case of Janet, involvement in climate-change work, women’s rights issues, adult literacy, loans and savings clubs and maternal and child health with Action Aid, SAWEG and Safe Motherhood in the

NGO sector has contributed to her improved wellbeing. Janet is a prominent “better-off” farmer and women’s rights activist who is well connected with many of the local NGOs and CBOs, including SAWEG and Action Aid. Her family finally relocated from old Mphunga settlement in 2009 following the devastating floods of 2008/2009 and three years of seasonal migration to higher ground during summer seasons. They lost their household property, land, stored grain and livestock during the floods. She is qualified with a Form 2 Certificate attained in Rhodesia (now Zimbabwe) when her father worked in that country (Janet, Interview 2013).

She serves many CBOs and some NGOs in different roles that often require her to travel both locally and externally to attend meetings. Her formal education and networking skills enable her to build contacts with strategic networks. For example, in 2011 and through Action Aid she attended the Climate Change International Conference in Durban, South Africa where she made a presentation and networked with contacts from Botswana, Kenya and Zambia. Owing to her frequent travels, Janet does often not have ample time to manage her household activities hence she relies on close family and friends to assist her. With the financial allowances that she makes from her trips and the returns from her loan and savings club, Janet’s financial position has increased. She no longer relies on farming alone. She also invests the income from her trip allowances in her farming activities and she is able to buy gifts for those who help her when she is away (Janet, Interview 2013).

Janet is an influential figure in Mphunga Group Village and her community often seeks her opinion on issues, including my research. She is highly regarded by both men and women as an educated, wise and intelligent person. And unlike other households that rely on their children for material support, Janet provides for her grandchildren and married children, including sponsoring her son’s migration to South Africa in 2010. Her various networks make it possible for Janet to sustain herself in the face of extreme weather shocks and poor farming returns. She is also able to support her husband who is blind and economically inactive as a result. Janet’s story demonstrates and reflects that being a woman is not an absolute obstacle to success in a patriarchal society like Mphunga, even though gender norms generally work to marginalise women.

Henry is the richest farmer in Mphunga, endowed with business acumen and experience to take advantage of business opportunities and markets presented by fellow farmers’ needs and challenges. He relocated from old settlement site of Mphunga Group Village in 2003 after marrying his second wife and he decided to set up a second home near his grocery shop and grinding mill business at Kandulu Trading Post that was well situated on the main road linking Kandulu Group Village with Salima Town and Lake Malawi.

He is the only regular source of *ganyu* in both Kandulu and Mphunga Group Villages and only lender of both money and crops. His lending business has grown exponentially due to the demand from struggling farmers. Henry uses his debtors' land as collateral, thereby enabling him to access more farmland to expand his farming business. Whilst his business conditions keep struggling farmers in perpetual debt, he realises a high return from his lending business. Due to his position and wealth, Henry wields significant power and influences the market for *ganyu* as well as crop and land rental prices in Mphunga and neighbouring villages. He is consolidating his wealth and growing richer

Henry has Standard 3 level of formal education and does not speak English at all. Of the 10 respondents, Professor was the only one with no formal education and he can neither read nor write. However, despite his level of education Henry is an astute business man through many years of experience. His social networks grow wider as more farmers approach him for favours, *ganyu* or to borrow money. However, some farmers now resent him for taking advantage of their poverty situation. This does not seem to bother him. He claims that he adheres strictly to Islamic principles of charity and helps the poor irrespective of their religion.

7.3.2 Assessing levels of social capital in Mphunga Group Village

In this section, I discuss the findings from my social capital assessment among the 10 life-history respondents. In assessing social capital and social networks, I have used the three social capital measurement dimensions discussed in Chapter 4 – reciprocity and trust, social and civic participation, and social networks and support (see Table 4-2). By virtue of assessing only 10 life-history respondents, I acknowledge that this is clearly not a fully representative sample. However, I used this particular methodology of life histories to explore issues in more depth through the 10 informants.

Reciprocity and trust

In exploring the dimension of reciprocity and trust I used a set of questions about my 10 respondents' views of their neighbourhood. The neighbourhood referred to the households or the village next to those of the respondent. Assessments about reciprocity within Mphunga were generally positive, with Alima, Chief, Janet, Henry, Margret, Professor and Zeinub indicating that people from within Mphunga help each other and Asefu, Harry, and Saison from the 'better off' category, saying there was a mixture of people who help and those who go their own way. At the same time "troublesome" neighbours were considered a fairly big problem by Asefu, Chief, Margret, Saison and Zeinub, and a very big problem by Alima, Harry and Zeinub, all of whom had either had altercations or knew of close associates who had had misunderstandings with troublesome neighbours not from Mphunga, but from Kandulu Group Village.

Upon further probing, it turned out that my respondents distinguished between misunderstandings with fellow farmers from Mphunga, which could be quickly settled, and misunderstandings with people from Kandulu, where tensions were likely to last for much longer. Among the respondents were strong perceptions that Mphunga people were treated unfairly in the cases tried in the Kandulu traditional courts. In the words of Chief (Interview 2013):

Our hosts are jealous of us. I would not let them know how well I may be doing or leave my children under their care. They call us ‘MaBurundi’ and that alone tells you that they do not sympathise with us. For their part, people from Kandulu insisted that they could not be tried in Mphunga courts because they are the owners of the land on which the people from Mphunga are currently settled.

Consistent with this, when asked if they agreed with the broad statement that their neighbourhood is a place where people from different religious, ethnic and wealth backgrounds get on well together, eight respondents agreed strongly except Chief who did not strongly agree and Henry who disagreed. The eight respondents who strongly agreed with the statement were confining their responses to people from Mphunga Group Village only, not people from Kandulu Group Village even if they were their immediate neighbours. Henry (the rich farmer) who disagreed did so because according to him, people are not always honest and genuine, and they have learned to manage their differences well in order to present a happy front against outsiders. In his words (Interview, 2013): “You have to hear the level of gossiping and bad mouthing when the people try to outdo each other to secure *ganyu* from me. I hear a lot of things.”

On the question of trust, Asefu, Harry, Janet, Margret and Professor trust people of their neighbourhood whilst Alima, Chief, Saison and Zeinub can trust some of the people and Henry trusts only a few depending on circumstances. Again, the outlier was Henry who has learnt not to trust people in both Mphunga and Kandulu Group Villages due to his experience of having loan agreements dishonoured by his debtors. Whether a lost wallet with an identity card which was found by someone from the Mphunga neighbourhood would be returned to the rightful owner, seven of my informants believed that it was very likely, Asefu and Harry thought it was likely and Alima said it was not very likely. She disagreed because she lost a wallet with some money and her identity in 2012 and never got it back.

Levels of trust in institutions varied, with trust being expressed for local institutions that were familiar than more distant district or national institutions. Interestingly, despite their experiences of gender discrimination, Alima, Margret and Zeinub indicated they trust traditional courts a fair amount. Concerning the Salima District Assembly, Janet, Chief and Henry trust it a fair amount, Professor,

Saison, Asefu, Margret and Harry trust it, but not very much, and Alima and Zeinub didn't know. The Malawian police was trusted a lot by Chief and Henry, a fair amount by Professor, Janet and Margret, and not trusted at all by Harry, Asefu, Saison, Alima, Zeinub.

When I asked my respondents to rank a range of social problems in terms of how serious these were in their neighbourhood, drunkenness and rowdy behaviour in public places, Alima, Asefu, Harry, Saison and Zeinub indicated that it was not a very big problem, while Professor and Margret said it was not a problem at all and Chief, Janet and Henry indicated that it happens but is not a problem. A question about whether teenagers hanging around drinking spots was perceived to be a problem produced a more varied set of responses. Six of the respondents thought it was not a very big problem whilst Saison, Chief and Asefu indicated that it happens but is not a serious problem and Henry said that it was a fairly big problem. Henry's child is addicted to alcohol which clearly influenced an emotional response from him.

There seems a generally high level of reciprocity and differing levels of trust between the respondents and their networks. It is likely due to their general and shared vulnerability and 'refugee' (MaBurundi) status among the people of Kandulu Group Village where they are settled. They seem to have strong bonds of solidarity from their common challenges, deep social ties and kinships. Except for Henry who has been in Kandulu for much longer, the rest of the respondents tend to consider neighbours as only the people from Mphunga, even if they may not be immediate neighbours. This is likely due to the high tensions, constant conflict and general lack of trust between the people from the two group villages

Social and civic participation

The first set of questions concerned (unpaid) participation in local groups, clubs or organisations, which was found to be high. All my respondents had given various forms of practical help such as repairing the local children's clinic, cleaning the church or mosque, or drawing water and firewood during funerals and cooking food for cultural ceremonies. Harry, Professor, Janet, Asefu, Saison and Chief reported either leading a group or being a committee member in over the 12 months prior to my study. The groups in question mentioned here formal ones with registered membership, like the Mphunga Rice Farmers' group and CBOs. All respondents, except Henry, had organised an activity or event in their community, for example a work party for their club. All 10 respondents had visited elderly or disabled people and given advice or counselled other people; and then Asefu, Harry and Saison had provided transport (bicycle) to those in need.

The 10 respondents were all involved with religious groups, albeit to varying extents. Nine of them were involved with farmers' groups except Henry whose busy schedule and business enterprises do not

allow him any free time. He is also self-sufficient and sees no advantage of belonging to any local farmers' groups: "I do not have enough time in a day to attend to my business and family. Where would I get the time to join local farmers' group? In any case for what purpose should I join such groups anyway?" (Interview, 2013). Harry, Asefu, Saison, Alima, Chief and Professor were involved with burial/funeral clubs, whilst Janet, Zeinub, Margret and Harry were involved with adult education groups, Harry with the Civil Protection Committee, and Alima, Janet, Harry, Zeinub with disability and welfare group and cultural activities.

Participation in local and national issues was the other aspect of the social and civic participation dimension of social capital that I investigated. Whether they can individually influence decisions affecting their villages or group village (a form of social capital and voice), Professor, Henry, Saison, Chief, Asefu and Janet strongly agreed, whilst Harry just agreed and Margret, Alima and Zeinub could neither agree nor disagree. These three poor women are more vulnerable and felt they lack voice or power: "Who would listen to me? After all, I was deserted by my husband and I do not have anything that people in my age group would wish for" (Zeinub, Interview 2013).

Despite her comparatively high standard of education and professional skills, Margret does not influence decisions to the extent that Janet (equally educated and professionally skilled) does. Professor, who cannot read or write, and Henry, with Standard 3 education, wield considerable influence in Mphunga Group Village. Professor is a highly regarded cultural expert and "Bishop" for *Gule waMkulu* as well as a Clan Head with tremendous social and cultural capital. Henry has huge stocks of financial capital and human capital (in the form of business knowledge experience and skills). Chief is a Village and Clan Head and Chair of the local Inkhata Policing Forum. Asefu is a Chairperson of the Village Development Committee, and Saison is a Clan Head and Village Head of Chikumba Village. Janet, as already noted, holds many positions and is associated with various NGOs, CBOs and clubs. Harry is a multiplier for two organisations and a Secretary for the village's Civil Protection Committee and his church. Harry serves on the VDC, Village Civil Protection Committee, Manthimba CBO and a Lead Farmer or Multiplier for Land O' Lakes and the Malawi Department of Agricultural Extension Service.

On whether the people of Mphunga could influence decisions affecting their group village by working together, eight respondents strongly agreed, Harry agreed and Alima did not have an opinion. Alima was sceptical as a result of her experience of property grabbing in which, in her words, "the community did not intervene on my behalf, making me wonder where is the power or justice in the people of Mphunga, particularly the Village Heads." In the 12 months prior to my study, Asefu, Harry, Janet and Chief had contacted an appropriate organisation or institution (including an NGO, CBO, a higher Traditional Authority or a government department) to solve problems affecting the people of Mphunga. They all had attended public meetings to discuss local issues. Seven of the ten respondents also reported

voting in the last national general election whilst Alima, Chief and Zeinub did not vote due to lack of interest, poor health and a busy schedule.

Henry was among the respondents who had not taken any action to solve local problems, despite his significant influence and proximity with the local Member of Parliament and officials from Salima District Assembly. This seems to give weight to the criticism by those who regard him as selfish and only interested in making money. He cited time constraints and his demanding businesses as the main reason for him not to get involved in community activities. Upon my asking him whether he would consider employing a manager in order to free his time for an active community life, he said he would like to groom his own children to take over from him but they are not yet ready.

Social and civic participation is an important conduit of social capital through which the respondents help one another and place a high premium on. Voluntary participation in local social and civic activities is fairly high. This is underscored by the numerous local clubs, groups and other forms of association through which they render practical help to children, the disabled and elderly and towards funerals, weddings, church and mosque activities. All the 10 respondents have supported elderly or disabled people and gave support to other people. The disruption of livelihoods and family as a result of social and or economic issues is affecting more women than men, and the 'poor' more than the 'better-off.' These gender norms and dynamics marginalise women in favour of men. This is not uncommon in a context like Mphunga Group Village. Janet is, however, an exception in this case.

This dimension of social capital did not assess the strength of the civic organisations to support members when the need arose. Apart from a few civic organisations such as Chinyama Adult Literacy Club, Chitukuko Irrigation Club, Takondwera Savings and Credit Club, the Inkhata Policing Forum, among others, which are fairly effective and well situated to render support to their membership and the community, the majority of clubs, networks and associations are not well positioned to make a difference in the lives of their membership and the community at large. The underlying structural and pragmatic challenges and limited capacity and resources overburden the civic organisations into ineffective functioning. Those supported by local NGOs like Chinyama, Chitukuko and Takondwera stand a better chance to support their members and the community at large. The collective social capital at this level is comparatively weak to help farmers adapt to extreme weather events.

Social networks and social support

The third dimension that I explored through my social capital assessment tool was that of social networks and social support. This focused mainly on the nature and frequency of contacts with family, friends and neighbours, as well as the extent of unpaid help rendered to and by individuals and groups

in times of need. What emerged was a dense network of contacts and communication, the nature and frequency of which was mediated for individuals by poverty, distance and locality, and access to technology.

Asefu, Zeinub, Harry, Henry, Janet, Margret and Saison speak to absent relatives on the phone once or twice a week, depending on whether they are in Malawi or abroad, how close their relationship is and affordability. Professor and Chief speak to relatives on the phone once or twice a month and Alima speaks to relatives less than once a month. With regards to speaking to or texting friends on the phone, Henry and Janet speak or text on most days. For example, one of Janet's daughters lives with her sister in Lilongwe, where she is going to school, and Janet's sister is also building a house in Mphunga which Janet is supervising on her behalf. These arrangements keep Janet and her sister in regular telephonic contact most days of the week. However, most respondents receive more calls than they make or send call-back messages to relatives or friends that they wish to speak to because of the cost. They communicate mainly to convey important messages such as news of illnesses, births, initiation ceremonies, and deaths.

While cell phones have penetrated Mphunga, writing letters is still an important means of communication, and Chief, Margret and Janet reported writing letters once or twice a month, often to relatives and colleagues away in towns or working at resorts along Lake Malawi. Saison, Asefu and Professor write less frequently, and since he can neither read nor write, Professor requests his daughter to write for him. Harry and Zeinub never write letters to relatives, noting that the nearest postal agency is far away in Salima Town and there are now much quicker and more effective option of communicating via the phone.

All 10 respondents speak to most of their neighbours on a daily basis. There are, however, some neighbours whom the respondents indicated they might only talk to when it is absolutely necessary, due to tensions and conflict as is the case with people from Kandulu Group Village. With regard to local friends, all the female respondents generally meet with friends once or twice a week. The male respondents also meet friends once or twice a week and Harry, Asefu and Saison usually meet their friends at "paLabour Centre" where they relax playing a board game or service their bicycles. Chief and Professor often meet at the village's tea rooms or beer drinking spots. Henry meets with friends once or twice a month at his own or his friends' houses. All my respondents meet with relatives who do not live with them once or twice a month, often during family/clan meetings and on occasions like funerals, weddings and other special occasions. The frequency of these meetings is affected by the seasons of the year, and how busy farmers are with their farming activities.

In the event of needing social support because of illness, all respondents indicated that they could ask for help from their children while Asefu, Chief, Harry, Henry, Janet, Professor and Saison identified their spouses and Alima, Margret and Zeinub identified their neighbours and family members, depending on the type of help sought. When in financial difficulty and needing to borrow some money to see them through a few days, all 10 respondents approach friends and relatives close to them and outside their households, and Alima, Asefu, Harry, Janet, Margret, Professor and Saison approach neighbours for help. Janet, Saison, Harry and Professor may also approach their spouses whilst Henry, Margret, Alima and Chief also referred to a local club, voluntary or other organisation. Henry, whom some of the respondents indicated they would approach for help as a neighbour or relative, specifically mentioned his bank as a source of financial help. Depending on the amount needed and the urgency he could also approach a friend who is not based in Mphunga Group Village.

A similar array of sources of support were identified in the event of a serious personal crisis and these ranged from family, friends, relatives, fellow church or informal club members and relevant CBOs. Henry is particular about who he approaches because he does not want his private affairs known throughout the village, and so he could approach one of the life-history informants (Asefu), who is a close relative, or a few select people from his mosque. Zeinub who is a member of several clubs draws benefits from a large labour pool and sources of help when needed. She is also approached by many people from the same clubs when they need help and her support.

In the preceding 12 months before my study, the respondents had individually given different forms of social support in the form of unpaid help to individuals and organisations. For example, Harry had helped disabled and elderly people through the Village Civil Protection Committee during floods whilst Janet had assisted pregnant women through the Safe Motherhood. Alima, Margret, Zeinub and Professor had visited sickly or elderly people in the community. All the 10 respondents had counselled someone else and had volunteered or assisted during funerals and initiation ceremonies. All the four women respondents and Chef and Professor offered consistent unpaid assistance. Janet and Henry also live with disabled and elderly family members who require special care on a daily basis. Other forms of unpaid help offered included domestic work by Alima, Zeinub and Margret, drawing water by Alima, Janet and Zeinub and running errands and baby-sitting by all four female respondents. Respondents cited various motivations for offering unpaid help to fellow members of the community. The main reason was solidarity, which was often framed in terms of spiritual beliefs that one good turn deserves another. "I consider it an assignment from God and who else would God work through if not fellow human beings?" said Alima. Some also framed it in terms of the need to stick together in order to overcome their current challenges.

The dense social networks of contacts between the respondents and their families, friends and neighbours, as well as unpaid help and social support in times of need is a relative indication of high levels of social capital at this level. However, there is a cost to communicating with distant networks which affects the poorer and illiterate. The respondents have a number of options for sources of help, and key among these are their children, spouses, family, friends and neighbours depending on the form of help needed. Even Henry, the richest among the respondents, seeks and receives moral and social support from his friends and family. The female respondents gave more social support and helped the sick more than their male counterparts. This is yet another gender dynamic that sees women undertaking more unpaid social reproductive work in the community than men. This affects the time available for them to undertake income generating work to support themselves.

7.4 Conclusion

Farmers are engaging with both informal and formal networks on multiple levels. There is a wide range of formal and informal social networks, clubs, associations and organisations informing the livelihood strategies of individual farmers against climate change in Mphunga Group Village. The local networks and clubs are informed by local cultural norms and values play an important role in their members' livelihood strategies. They vary in structure, size, primary purpose, structure, membership, rules and the length of time that they have existed. Some of them bear similar names, most are transient, evolving and dormant yet active when a need arises. Factors such as gender, religion, kinships and familial ties, solidarity, age and socio-economic status influence membership, the extent of the relationships and nature of the support sought and offered.

Formal networks and organisations from outside Mphunga Group Village which include NGOs, international donor organisations, government structures, and the media are coordinated by experts who are shaping farmers' understanding of climate change and their response strategies. The NGOs are playing important roles that influence the vulnerability context of farmers and the adverse impact on local livelihood strategies and outcomes. They are building livelihood resilience through improving the institutional response capacity of the Salima District Assembly and the Village Civil Protection Committee. Whilst many NGOs are enhancing community resilience against poverty and floods, there is evidence of growing donor dependency among the farmers who receive relief aid from the NGOs and government after floods. Their poor coordination and competition for relevance is resulting in unnecessary duplication in their services (for example around flood evacuation and farm inputs).

The importance of social capital is also reflected in the life histories of 10 selected farmers with different livelihoods portfolios. Their life histories allow for a deeper understanding of how weather shocks and poverty dynamics unfold in individual lives, and the role of gender, social status, religion and class in

mediating their life experiences. Their personal lives also reveal the significant role of social capital in the ways in which they have coped with the impacts of extreme weather events. In terms of the trajectories of their livelihoods, the majority of these farmers were on a downward trajectory, and only two of them were experiencing an upward trajectory. In assessing the role of social capital and social networks, working with only 10 life-history respondents was not a fully representative sample. However, it afforded exploration of issues in more depth through their life histories and demonstrated that trust and reciprocity, civic participation and social support play a significant role as important dimensions of social capital.

Chapter 8: Mphunga farmers' understandings of climate change and their adaptation strategies

This chapter builds on the findings presented in Chapter 6 and 7 to further elaborate on my research findings with regard to farmers' understandings of climate change. It thus addresses the encounter between two different knowledge systems – that of national and international experts on the one hand and of poor Mphunga farmers on the other. In their interactions with farmers, experts deploy the scientific knowledge and technical language of the international institutions that have been set up to research and develop policy around climate change while farmers, particularly the older and more experienced ones, tend to rely on local farming and environmental knowledge, traditional belief systems and indigenous weather forecasting. What emerges from my fieldwork is that young and elderly farmers experience the relationship with experts differently as a result of the intersection of a range of factors, including their different levels of education and literacy, and their access to alternative knowledge sources. As already indicated in the previous chapter, gender also emerges as an important variable.

In what follows I first discuss farmers' understandings and interpretations of climate change, its causes and the factors that shape and influence such perceptions and interpretation, including age. In section 2 I review the role of intermediaries in how farmers are engaging with and responding to the information and advice they receive from different categories of experts. In section 3 I explore how farmers are reacting to the adverse impacts of climate change and the strategies they are using to secure their livelihoods. A brief concluding discussion follows in section 4.

8.1 Farmers' understandings of climate change

A complex range of factors shape Mphunga farmers' understandings of the climatic changes that are occurring in their locality and how they access information relating to climate change, including their own experience of shifting seasonal patterns and temperature changes and the adverse impacts of extreme weather patterns, what may be termed indigenous (local or traditional) knowledge systems around weather forecasting, levels of formal education, and religious and cultural commitments.

8.1.1 Awareness of climate change as a phenomenon

The notion that the climate may be changing is not an entirely foreign concept among Mphunga farmers. In the local Chichewa language the concept of climate change has been translated as *kusinthwa kwa*

nyengo, with the literal meaning of “the changing of the weather”²¹ (Core Reference Group Discussions, April 2013). In everyday spoken Chichewa, however, there is no clear distinction between the concept of the weather (*zanyengo*) and that of climate: thus what most local farmers understand as climate change blurs with extreme weather events in the form of natural disasters such as floods, droughts, high temperatures and shorter or shifting seasons. That said, the English term “climate change” that is used by experts has begun to circulate locally, as a result of the work of NGOs in the area. The term is especially gaining currency among young farmers who use it in everyday language more than the vernacular expression. Mustapha (Interview, 2013), a young male farmer who was a multiplier and central to the Red Cross Society of Malawi’s video shoot activities claimed that:

Before the arrival of the Red Cross Society and other NGOs (like COOPI and Action Aid) in our village, I had only heard about *kusinthwa kwa nyengo* over the radio, but did not have the opportunity to ask questions and receive answers to my satisfaction.

I was unable to find agreement on when the concept of *kusinthwa kwa nyengo* first entered the public domain in Malawi, but according to Chavula (Interview, 2013), this may have been in 2005 when the Malawian Department of Meteorological Services was renamed to include ‘Climate Change’ in its formal title and specifically mandated to develop the country’s NAPA. Reference to local knowledge systems and traditional signs of climate change, in terms of *kusinthwa kwa nyengo*, came up in my Core Reference Group discussions. Four developments were singled out as clear signs of climate change: i) the smaller size of local mangoes that they were harvesting, ii) the frequency of unusually dry spells at the peak of summer that were ruining crops, along with yearly floods, iii) the more frequent south-easterly winds, locally known as *Mwera*, and iv) the loss of natural soil fertility.

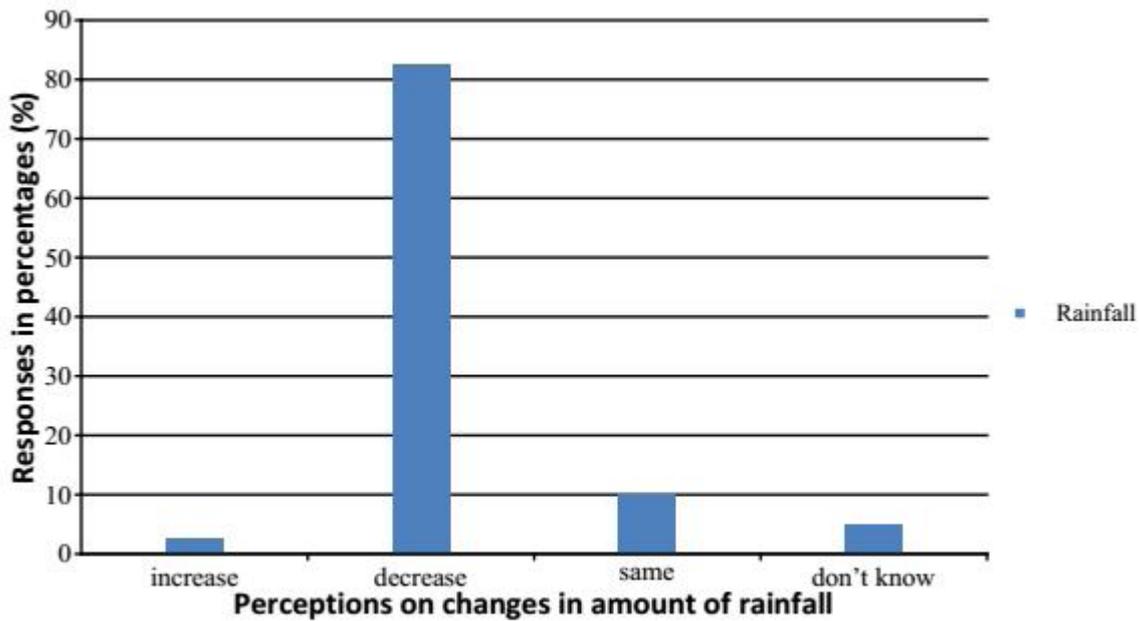
However, it also became clear that the concept of climate change is loosely applied by farmers, especially younger ones, to explain any occurrence that can be seen as “unnatural.” An example is the decreasing fish harvest from Lake Malawi which is often blamed on “climate change” rather than on other factors such as overfishing due to economic hardships and poverty. In other words, farmers are now using the idea of “climate change” to account for the general livelihood problems they encounter. This demonstrates both the growing awareness of the concept that operates locally, but also the complexity of the phenomenon and lack of specificity around what the term actually refers to and its currency as a catch-all phrase. Thus, farmers seem to use the concept whenever they have no other plausible explanation for the many social, economic and natural livelihood challenges they face in their daily struggles for survival.

²¹ In everyday spoken Chichewa there is no distinction between weather and climate (Chavula, Interview 2013).

It is of course very possible that the *Mwera* winds that farmers believe are impacting on the availability and movement of fish may be due to the changing climate. However, making a distinction between the impacts of climate change and on-going prior problems is difficult to establish, sustain and, arguably, ultimately counter-productive. Both factors may be impacting on each other in direct and indirect ways. Equally, the drying up of the local Lifidzi River could be a function of both extreme weather events like recurrent droughts and human mismanagement practices such as destroying the watershed and river ecosystem through cultivation of the riverbank in search of wetland garden sites.

Farmers also cited the changing patterns in temperature, rainfall and seasons as indicators of changes in local climatic conditions. Older farmers (41 years and above) outlined the significant changes they have observed over the past three decades in the intensity and timing of rainfall as well as the generally delayed onset and duration of seasons as evidence for a changing climate. Over 80 per cent of the farmers in my household survey (106 out of 129) reported that over a period of five years the amount of rainfall received in Mphunga Group Village had reduced significantly (Figure 8-1). The farmers also reported that the heavy downpours that characterised the peak of their rainy seasons in the past have now become rare, even though flash floods are more frequent. The duration of the downpours has reduced to only a few minutes, and rain events that last for several hours, as in the past, are now rare. This is reflected in the lower water levels of the local Lifidzi River, which no longer flows throughout the year as it did before 2010.

In determining their responses, farmers relied on memory and perceptions since they had no written rainfall records to back up their views. The views of the majority of the farmers were, however, consistent with the records of the Malawi Department of Meteorology and Climate Change (2012), which shows that the average rainfall in Salima District has decreased over the years. The great majority of farmers in my survey also believed that temperatures have increased, with 83 per cent (104 out of 129) reporting hotter summers and warmer winters. This corroborates findings in expert studies of climate change in Malawi, such as that conducted by the World Bank (2011:3-4). Only 10 per cent of the farmers in my survey (13 out of 129 farmers) reported that they were unaware of any temperature changes, with a further 8 per cent (10 out of 129 farmers) saying they had not observed any changes in temperature. It is significant that the majority of the farmers who had not observed temperature changes were young, with more limited farming experience than their elders. Their frame of reference was narrower than the elderly farmers who had numerous examples of weather conditions over the years to cite. This is in line with Maddison's (2007) study on perceptions and adaptation in some African countries which found that the more experienced and older the farmers were more likely to claim temperature increases.

Figure 8-1: Mphunga farmers' perceptions of changes in the amount of rainfall

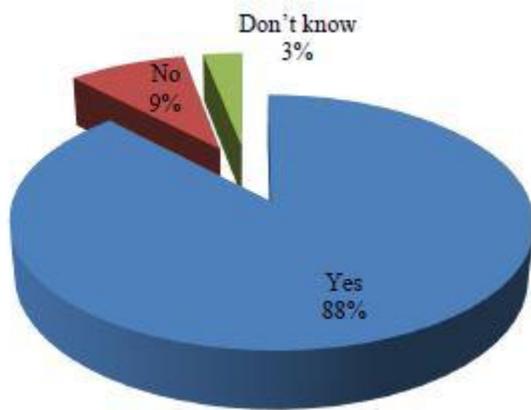
Source: Household survey data, 2013

8.1.2 Perceptions of changes in the seasonal calendar

In order to understand better the impact of changing weather patterns, I analysed farmers' seasonal calendar of activities. The material that I gathered through my life history and Core Reference Group discussions as well as the household survey revealed that the great majority of farmers are in agreement that the farming seasons have changed. As evidence to support their observations they mention the timing of their farming activities, and that of the first and last rains, as well as the length of both the winter and summer seasons. As shown in Figure 8-2 below, 88 per cent (114 out of 129 farmers) of my survey respondents acknowledged seasonal shifts, compared to just three per cent (4 out of 129 farmers) who did not know and nine per cent (11 out of 129 farmers) who said they had not observed any seasonal shifts.

Most farmers indicated that the rainfall season used to commence in between October and November until the end of April, but from as early as 2000 the onset of the rainfall season had shifted to mid-December and now lasts until the beginning of March (Core Reference Group Discussions, April 2013). Furthermore, the rains which normally fall in July or August and help in the breaking down of crop residue in the fields, now do not come or comes quite late. They also indicated their planting season has shifted as they now plant from late November into December unlike before when they planted in October. These shifts of their seasons are a clear indication to the farmers that the climate is changing.

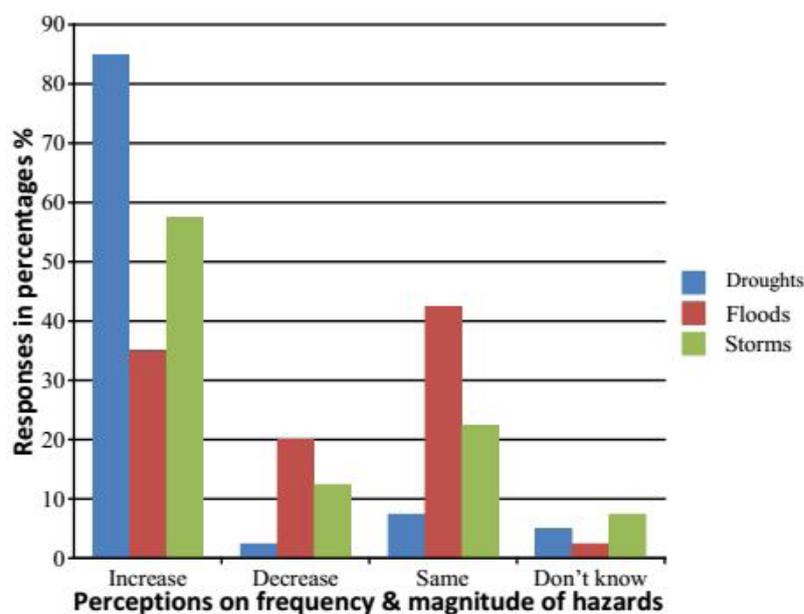
Figure 8-2: Observed seasonal changes among Mphunga farmers



Source: Household survey data, 2013

In discussions around perceptions of climatic hazards and their link with climate change, farmers cited storms and flash floods, long dry spells during summer, droughts and the frequent occurrence of weather hazards in the past three decades as issues of major concern. Eighty-five per cent of the farmers in my survey (110 out of 129) observed that the severity and frequency of droughts has increased. Perceptions around floods were more mixed, with 35 per cent (45 out of 129) indicating that there were more frequent floods than in previous years and 42 per cent (54 out of 129) not perceiving any unusual changes in the occurrence of floods. This, of course, was not an indication that floods had not been a problem but, rather, that they were no seen as more onerous than in the past. However, 58 of the farmers reported an increase in violent storms, which they associated with higher temperatures (Figure 8-3).

Figure 8-3: Mphunga farmers' perceptions on frequency and magnitude of extreme weather events



Source: Household survey data, 2013

Among other physical indicators, international NGOs are citing the frequent recurrence of floods and droughts as a manifestation of climate change that is adversely impacting on Malawian farmers' lives (Ziervogel *et al*, 2008b; Oxfam International, 2009 and Action Aid, 2012). During the core reference group discussions, farmers reported that they would consider rechanneling the Lifidzi River in order to divert it from their lands and minimise the direct impact of floods, but they lacked the financial resources and technical expertise to do so. They would, however, be willing to contribute their labour and whatever locally-available materials were needed to enable such an intervention.

8.1.3 Traditional weather and climate forecasting

My study also explored the ways in which farmers draw on indigenous knowledge systems in forecasting weather and climatic conditions (see Table 8.1 below). Traditional knowledge systems play a key role in farmers' understandings of their local environment and weather as well as seasonal changes, and a study on incidences of indigenous and innovative climate change adaptation practices for smallholder farmers in Chikhwawa District (in Southern Malawi) by Magombo *et al*, (2011) made the same conclusions. According to Chief (Interview, 2013), the appearance of white birds known locally as *kakowa*, the frequent occurrence of grasshoppers (known as *kanunkhadala* in Chichewa), and the south-easterly winds (*Mwera*) from Lake Malawi are all signs that farmers interpret as signalling a good farming year with lots of rainfall. The absence of these phenomena indicates a bad farming year. The indications are, however, that over time the signals that farmers have relied on are becoming less reliable, meaning that climate change is undermining the reliability of their local knowledge. Thus Professor, one of my life-history respondents, spoke about the appearance of the corona around the moon which was once seen to signify good rains, but more recently has come to be seen as unreliable by appearing even in dry years.

The local agricultural advisory experts from NGOs and government departments would neither confirm nor deny the accuracy of the traditional knowledge systems and signs used by farmers when I asked about them during my key informant interviews. However, during informal conversations with some government extension experts they indicated that farmers' observations had some validity, even though the experts would not openly and officially back up such observations or ways of knowing for professional reasons.

The signs of weather and seasonal changes above were shared by farmers, but there were differences in terms of age, with mostly the reservoir of local knowledge and some of the younger farmers, who held the same knowledge, not really believing it was accurate. The times of the year when the signs of weather and seasonal changes are observed are not consistent, thus affecting the social responses and

compromising the accuracy and significance. These inconsistencies are causing younger farmers to doubt and question the local knowledge. It is, however, significant that elderly farmers continue to hold onto their beliefs and trust in the local weather and climate forecasting despite the inconsistencies.

Table 8-1: Local knowledge signs of weather and seasonal changes

Timeline	Signs	Significance	Response
July-September	Outbreak of mice	Erratic rainy season ahead, therefore poor harvest	Prepare drought resistant crops e.g. cassava, millet, sorghum
October-November	Cricket songs by air crickets	Rains looming within 6 weeks	Prepare land
October-November	Outbreak of ground cricket	Erratic rains (dry spell)	Weeding time
November-March	The giant spider's web closes or opens	Rainy day/dry spell	Plant/weed/dry crop
November-March	Crocodiles move upland	Floods looming	Shift settlements upland
December-March	Snails come out of their shells	Rainy day	Plan for rain
December-January	Appearance of dragonfly	Wet weather	Plan for rains
December-January	Appearance of army worms	Erratic rains	Plan for alternate crops
February-March	Appearance of green caterpillars	Rains phase out in weeks/bad rains	Plan for harvest
February-March	Swarm of white migration birds	Middle of rainy season	Time for green harvest
February-March	White flying ants	Middle of rainy season	Time for green harvest
April-May	Appearance of brown beetles	Winter	Time for harvest
December-March	Fish are seen near the surface in the lake /fish disappear deep into the water	Hot weather/cold weather	Time for fishing/Not good time for fishing
October-December	Appearance of a group of stars (often 7 of them or so) in the sky at night	Rains looming/winter looming	Land preparation

Source: Core Reference Group Discussions, 2013

8.1.4 Perceived causes of changes in weather

My discussions around the causes of the changes they perceive revealed a complex range of views among farmers, which I have clustered in terms of three main explanatory frameworks. The first

explanatory framework refers to natural influences or causes of climate change. The second and third explanatory frameworks both highlight human activities as contributing to climate change but differ on how they are responsible. The one view is that internal failures such as the loss of spiritual and cultural values and practices and conflicts have angered God (or Allah) who has unleashed punishment through climate change. The other view is that external human activities from ‘Western’ modernisation and the resultant industrial pollution are at fault. At the same time, a sizable number of respondents in my household survey (28 per cent) indicated that they did not know how to account for changes in the climate, even though they had observed them. These were mostly illiterate and elderly farmers from the “very poor” and “poor” wealth clusters.

Table 8-2 and Figure 8-4 show the spread of the three explanatory frameworks among the farmers who took part in my survey. A significant number of my respondents (45 per cent or 58 out of the 129 respondents) believe that the climate changes they have experienced were bound to happen and are the result of the interplay of different natural forces that are beyond anyone’s control to stop. It is, therefore, important for farmers to accept the changes in seasons and climate and adapt to them. At the same time, they are also of the view that nobody will know what future changes will occur.

A much smaller group (19 out of 129, or 15 per cent) identified cultural and religious (or spiritual) concerns as significant. Millar, Kendie, Apusigah and Haverkort (2006:20) underscore the centrality of the spirit world in African knowledge systems by stating that “for many Africans, existence is a spiritual phenomenon and man is a deeply religious being living in a religious universe.” This group included farmers across the different religious backgrounds, in Mphunga Group Village, including Christianity, Islam, and traditional African belief systems. The latter raised concerns that visits to shrines and the performance of traditional ceremonies and ceremonies are not done properly anymore. They highlighted that cultural practices normally performed before the rainy season, to clear bushes and cleanse the local environment, had not been done correctly over the years, thereby angering God (or Allah or the ancestors) who was either withholding the rains or sending too much rain as punishment. Some farmers also blamed “people who were killing each other” and wild animals indiscriminately for the reduction in rainfall. Natural disasters were believed to be retribution for not keeping the laws of Allah or God.

An even smaller group, constituting 12 per cent of my respondents (16 out of 129) expressed that the changes in climate were resulting from other human activities. For example, a young male farmer stated that “Western factories are polluting our environment and we are now paying the costs yet we do not benefit anything from their factories. So, where is the justice in that?” These explanations were given mainly by younger farmers (both men and women, from the poor as well as the better-off wealth clusters), who cited NGO experts as their source. Although this suggests a greater alignment with expert opinion on climate change, farmers also cited a very wide range of other possible anthropogenic

(human-driven) causes behind the changes including veld fires, deforestation and war and conflicts. An elderly male farmer (2013) lamented:

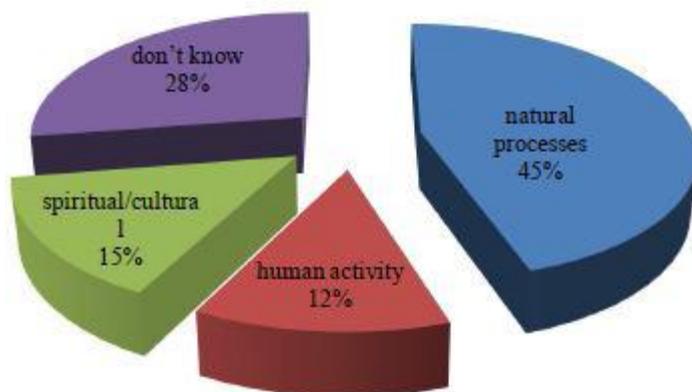
We shoulder our fair share of the climate change impacts right here in Mphunga. Who is behind the yearly veld fires or the indiscriminate cutting down of trees for beer brewing, hunting and baking bricks for sale or own construction? For how long can the earth or God take that?

Table 8-2: Farmers' explanatory frameworks on causes of climate change

Explanatory Framework	Number of Farmers	Per cent
1. Natural causes: Reasons included warmer sun and loss of biological diversity	58	45
2. Do not know: No explanation for the causes of climatic changes	36	28
3a. Human responsibility: spiritual and cultural lapses: Farmers from Moslem, evangelical Christian and African traditional religions cited Allah, God, and the ancestors respectively as meting out punishment on humanity, through extreme weather events due to the sins committed by people. These sins encompassed a wide range of internal errant human activities such as wanton deforestation and thus disrespecting the earth/nature, promiscuity and non-heterosexual relationships. In the case of the ancestors specifically, they were seen to be unhappy with people's loss or disregard of traditional cultural practices and norms through murder, rape and the failure to perform rainmaking ceremonies.	19	15
3b. Human responsibility: western economic activities and emissions: This group pointed to economic changes associated with 'western modernisation' and economic industrialisation as the cause of climate change, such as factory-produced gas emissions.	16	12
Total	129	100

Source: Household survey data, 2013

Figure 8-4: Perceived causes of changes in climatic and environmental conditions



Source: Household survey data, 2013

8.1.5 Understandings of climate change in relation to age, gender and levels of education

As the previous discussion makes clear, age, gender and levels of education emerged as important factors in how farmers access information and understand the causes of climate change that are advanced by external experts. Older farmers rely mainly on oral history and experiential evidence to engage with younger farmers and experts on the issue of climate change from their own perspective. Compared to their elders, young farmers are exposed to a wider variety of information sources and have a comparatively better education that allows them more direct access to scientific knowledge and materials from the media, NGOs and researchers. They thus displayed a better grasp of the scientific knowledge around climate change during my interviews and core group discussions, using concepts such as global warming and showing awareness of its association with carbon emissions from human economic activities. They cited their higher levels of education in comparison to that of their parents, as a reason for their comparatively 'scientific' understanding of the technical concepts and scientific processes of climate change. Their higher levels of formal education facilitated their access to information from the print, electronic and social media. It also meant that younger farmers were more likely than elderly farmers to access the training offered by local NGOs, such as the Red Cross Society and COOPI, and to be recruited as multipliers or serve on the Village Development Committee and the Civil Protection Committee.

For example, during my key informant interviews two youthful members of the Mphunga Civil Protection Committee showed me information materials on climate change, including old newspaper cuttings and booklets, which they had received from different NGO sources. They had a digital video disc (DVD) on climate change which they had requested from a Canadian researcher who had visited Mphunga with the Red Cross Society in 2009. A young farmer serving on the Village Development Committee also showed me a printed copy of a 2009 Belgian Student's MA thesis on floods, livelihoods and climate change in the village (Baumhardt, 2009), as well as some Action Aid reports and policy briefs written by a local NGO, the Centre for Environmental Policy and Advocacy (CEPA).

At the same time, while some young women have benefitted from improved access to education and training, access to such opportunities remains skewed in terms of gender. Compared to men, Mphunga women of all ages have lower levels of literacy and fewer opportunities for exposure to opportunities outside the village or to be selected into positions of authority within village-level projects or structures. However, young women comprised more than 70 per cent of the study's young farmer respondents. Despite working in family wetland gardens and farm fields, Mphunga women interact less than men with the local field extension officers, who are usually male. This is partly because their responsibility for household chores means they have little free time in which to interact with field officers. It is also

customary for men to socialise mainly with other males, and therefore for male field officers to engage more with male than female farmers. That said, as the life history of Janet (recounted in the previous chapter) has shown, being a woman is not an absolute barrier to interaction with external experts and, given the attention to gender equality that informs most international agencies' development work, it may work to certain individuals' advantage.

While younger farmers who are fully literate are able to access written materials on climate change and deploy the technical concepts used by experts with greater confidence than their elders, they have more limited experience of extreme weather events than older farmers. Limited access to higher levels of formal education, beyond primary school, also means that they do not necessarily understand the scientific basis of some of the concepts they use and are unable to explain the science of climate change and the underlying causes of what they describe. During interviews and group meetings, I have observed younger farmers, both current and former multipliers (in particular Harry, Mustapha and Zex), who have adopted the dominant discourse on climate change from the official experts with whom they have been in regular contact over the years, referring to international climate change structures such as the IPCC and parroting the language of climate science and concepts like "global warming" and "greenhouse gases", without fully understanding their meaning or the processes involved. They use their association with experts to legitimise their voices and claims on NGO and government agencies and other structures.

"Global warming and greenhouse gases are causing climate change. For us here in Malawi the greenhouse gases are resulting in floods, droughts and earthquakes. The ozone layer is filled with the most dangerous gases from the European factories. It is now overheating and causing the worst droughts and sicknesses" said Zex (Interview 2013). During my interview with Harry, he constantly referred to his regular contacts with the various experts that he represents: "I am only a messenger relaying messages from experts to the farmers who approved or selected me into these positions. I interpret and simplify the messages for my fellow farmers" (Interview 2013). He also argued that by serving on several village structures he is able to access more expertise from the experts than his fellow farmers.

In this way, these individuals become strategic agents and allies for the scientific knowledge narrative on climate change that experts push. In the process, the young farmers are likely advancing their personal interests, by deriving social status from associating with experts, as well as positioning themselves in relation to strategic structures and access to associated resources. Inevitably, they also devalue the messages of climate change science and the meaning of key concepts, resulting in the spread of poor or only partial information among other farmers in the process.

8.2 The interface between farmers and experts

8.2.1 Local extension officers and multipliers

As already discussed in Chapter 7, high-level official experts from NGOs and national government departments work largely through intermediaries. The intermediaries include agricultural extension officers and lead farmers (or multipliers), as well as the formal village-based structures like the Village Development Committee, the Civil Protection Committee and traditional authorities. In turn, the formal intermediary structures work with informal networks such as clubs, farmers' groups and other CBOs. The local extension officers and multipliers thus form an important segment of the lower echelons of the body of community-based experts who are interfacing regularly with farmers. They play a significant role in promoting technologies, delivering advisory services and translating key messages and information about climate change and government policy, derived from the official scientific experts, to local farmers (Joabu, Interview, 2013). They are often early adopters of the new technologies (for example new seed varieties, irrigation equipment, flood early warning tools) and act as opinion leaders on the importance of the new information they promote. The intermediaries are, therefore, the most visible and active representatives of experts on the ground. In comparison to older farmers, younger farmers are generally more receptive to the scientific explanatory frameworks for climate change received from such experts. Meanwhile, the elderly farmers tend to hold more firmly onto local knowledge systems and traditional beliefs, informed by their own experiences and understanding of the causes of extreme weather events and climate change.

NGO field officers interact with farmers at least monthly and support them with a range of advisory information and technical services. These services include advice on the best seed varieties to grow, on planting and irrigation techniques and on land conservation and management (Kambauwa, Interview 2013 and Core Reference Discussions, April 2013). Government extension officers often work under difficult circumstances, with very limited resources. Kipandura (Interview 2013) has identified their lack of transport to visit farmers and respond to their requests, as well as an absence of training materials and refresher courses on climate change as significant operational constraints. This seems to suggest that some government extension officers may be underutilised by their departments. This situation has led some of the officers to take advantage of their long-established and close relationships with farmers to act as part-time paid agents for well-resourced private seed companies and some local NGOs. In this capacity, extension officers risk promoting messages and technologies that may not be consistent with official government policy and neglecting their official duties in pursuit of extra income. This contributes towards distortion, conflicting messages and confusion regarding climate change among farmers.

For example, during my fieldwork I spent two weeks trying unsuccessfully to track down an extension officer for an agreed interview, only to meet him accidentally as a part-time facilitator of a new NGO that was preparing to commence a project in a neighbouring village. The Officer (JJ) was working as a private consultant for the new NGO. He said he had been unable to honour our appointment because he had not been allocated fuel for his official motorbike to undertake the routine trip to Mphunga. When I asked him whether there was no conflict of interest in his working for two employers, JJ (Interview, 2013) replied:

Some of us are now resorting to several livelihood strategies to survive the current hard economic times. I am still at my duty station and willing to work though, and my employer is challenged to avail the resources to enable me to do my job. So, what can I do?

At the time of my fieldwork Mphunga Group Village had four multipliers (one female and three males, all under the age of 40 years) who acted as model farmers. I interviewed all of them as key informants, with two of them (Harry and Janet) also included among my 10 life-history respondents. They had been identified as lead farmers (or multipliers) on the basis of their interest in farming and the personal relationships that they had been able to develop with field officers of the Department of Agricultural Extension Services as well as with officials from Action Aid, COOPI, Land O' Lakes, and the Malawi Red Cross Society. The multipliers acted as village representatives of these agencies, through whom official messages from the organisations could be transmitted and on whose land farming trials or demonstrations could be carried out. One multiplier could represent more than one expert agency, as in the case of Harry who worked with both Land O' Lakes and the Department of Agricultural Extension Services. They receive an irregular allowance and get an opportunity to be trained by the NGOs they represent. However, those who represent government departments do not get an allowance, but may receive extra farm inputs or host field demonstrations at their fields in compensation for their role.

The four multipliers that I interviewed exhibited a close relationship with the organisations that they represented. As a result, they had more privileged access to farming information and at times to resources as well as to new technologies compared to the rest of the farmers a clear example of social capital working for them. Two of the multipliers who double up as members of the village's Civil Protection Committee also receive on-going awareness training on disaster risk management and climate change from COOPI and Salima District Assembly. As a result, they exhibit more technical knowledge about climate change issues than their peers. However, I was able to observe that their knowledge was not always factually correct, a possible function of their limited formal education. For instance, Harry linked the shifting rainy season and floods directly to the indiscriminate cutting down of trees and burning of wood during brick-making by her fellow farmers. He also linked climate change

to poverty and illustrated this by citing the UK as a prosperous region that is not affected by climate change because they do not cut down trees indiscriminately.

As a result of their close association with experts, multipliers are perceived by fellow farmers and also regard themselves as semi-experts in their own right, or even as employees of the agencies they represent. This gives them an elite status among other farmers and they tend to be loyal to the agencies they represent and often uncritical of the interventions run by them. In this regard, I observed multipliers using accessories such as huge but empty files, clipboards and wrist watches during public meetings to express their superiority among fellow farmers. The use of multipliers that are permanently based in the group village and supported by field extension officers seems an effective strategy for both NGOs and government. They enjoy a close relationship with their neighbours and are likely to be trusted by them for their farming advice and expertise. Thus, Janet (a life-history respondent) made the following statement when I asked for her opinion of the multipliers and their expertise:

They (the multipliers) live among us and so we observe them closely to see the seed varieties they use during both winter and summer farming seasons, and the timing of their planting or irrigation use. Some of them are our relatives and neighbours, hence there is no way they can give us ill advice. When they fail we fail together and when they succeed we do so together.

8.2.2 Experts' use of media

The NGOs working on climate change in the district deploy a number of strategies for raising public awareness beyond relying on local intermediaries, including the media. The campaign aimed at raising public awareness on the causes of climate change and the impact of floods and droughts that the Red Cross Society of Malawi embarked on in Mphunga Group Village in 2007, which made creative use of media through photo stories and a video shoot, is a good example. The training was well-received by the farmers, especially younger ones, with many referring to the NGO's long presence in the area with approval. Some also sported branded T-shirts relating to the video shoot.

Farmers also receive information about climate change from the national Malawi media. For example, two of the better-off farmers and one of the poor farmers in my survey described learning about climate change issues through listening to farming programmes on the radio; specifically: Radio Alinafe's *Za Alimi* (For Farmers) programme and Radio One's *Nthawi ya Alimi* (Farming Issues) and *Ulimi Walero* (Good Farming) programmes. Through these radio programmes they were exposed to new ideas about conservation farming, climate-smart agriculture and farming technologies. When I asked Zeinub what she had learned from the radio programmes she said:

I learned many farming techniques from a representative from Total LandCare (a local NGO) who shared about mixing rice and cassava in the same crop field, zero tillage and conservation farming that are resilient to both floods and droughts on Radio Alinafe. I will ask the extension officer to show me how these techniques actually work next time he visits (Interview, 2013).

The above quotation highlights the role of radio as an important source of information about farming and climate change for farmers. Those farmers with access to radio play an important role in sharing information about climate change with fellow farmers, and this augments what they are learning from other sources, for example agricultural extension officers.

8.3 Farmers' coping and adaptation strategies for dealing with extreme weather events

Farmers are vulnerable to the impacts of extreme weather events which are resulting in low crop yields and loss of livestock and property. In responding to these challenges, however, farmers employ different coping and adaptation strategies, depending on their farming experience and belief systems, their understandings of the risks associated with climate change and extreme weather events, the material resources they command and their social networks (Grothmann and Patt, 2005). Stringer *et al* (2010) define the difference between coping and adaptation strategies in terms of timeframes; coping strategies are short-term and necessitated by a crisis whilst adaptation strategies are medium to long-term and likely to be more planned and asset-based. As already indicated in Chapter 2, however, the distinction between coping and adaptation is often quite blurred, and what may start out as a coping strategy for dealing with exceptional circumstances can turn into a medium or long term response in the following years.

While mitigation and adaptation are the two main approaches for addressing climate change identified by the UNFCCC, experts argue that adaptation is more relevant for developing countries because they are insufficiently resourced to undertake effective mitigation strategies. Consequently, in order to deal more effectively with the effects of climate change, the focus of policymakers has shifted from mitigation to adaptation (Christopolos *et al*, 2009). This is largely because mitigation is far more expensive and long-term, requiring material, technological and other forms of investment. McCarthy *et al*, (2007) however, argues that adaptation and mitigation must be addressed as complementary strategies because even if the best mitigation measures were adopted on a global scale, climate change would continue to take place for several decades, thus making adaptation strategies essential. Adaptation occurs at individual, household, community, and larger institutional scales (Adger *et al*, 2005).

In Mphunga Group Village mitigation strategies are not actively under consideration because of the high costs and long timeframes involved as well as lack of the resources needed. Because of immediate and urgent livelihood needs as well as pressure from the daily struggles for basic needs, farmers are focusing on coping and adaptation strategies to sustain themselves (See section 6.4.3 on Zex and Saison, the two fishermen argument about urgent basic survival needs). As a result of these livelihood challenges, my study did not focus on mitigation as a response strategy since farmers are not implementing what can be regarded as mitigation measures.

Farmers have developed resilience and important local knowledge about their environment and long history of dealing with natural hazards, including climate variability. The range of adaptation strategies and techniques can be categorised into different groups identified by Osei (2016), and Pinto *et al*, (2012), namely introduced or formal research-based strategies and indigenous adaptation strategies. Farmers are using a range of mixed strategies which they are accumulating over time. They are following a range of traditional and modern adaptation mechanisms such as rearing ducks as opposed to chickens, adapting to new farming technologies, shifting their homes from low to higher ground during the rainy season, migration and storing grain in special granaries among other strategies. Better-off farmers in Mphunga are also building houses with specially raised foundations to counter future flooding.

The Red Cross Society of Malawi (2007) and Joshua *et al*, (2016) have noted that despite their long experience of coping and adapting to weather shocks and market and policy changes, in recent years it has become evident that farmers are struggling to adapt to the frequency and intensity of shocks from extreme weather events. Their capacity to adapt is being undermined by a variety of factors and growing poverty. The growing intensity, frequency and magnitude of floods and droughts over the last decade are adversely impacting on farmers' water and food security, energy and livelihoods.

Coping strategies

In coping with the crises arising from extreme weather events, Mphunga farmers are relying on both externally and internally mobilised. Experts from NGOs, government departments, alongside their village-based multipliers, are playing a significant role in evacuating farmers during floods, facilitating farmers' access to relief aid, new farming technologies and affordable finance, flood early warning skills, health and education services. As illustrated in Chapter 7, in addition to the external support flowing through expert channels, despite the growing poverty farmers are supporting one another in both material and non-material ways through their informal associations, social networks and collective action in which social capital plays an important part.

Farmers in my household survey identified a range of coping strategies in response to question B19: “In a bad year, what are your main responses/coping strategies (to floods, drought and other disasters)?” (See Appendix 6; note that farmers were not limited in the number of responses they could give). The coping strategies include the following: *ganyu* (informal agricultural piece jobs), remittances, food aid, gleaning from other people’s fields, rearing ducks, pit-planting, fishing, barter trading, small businesses, reduced daily consumption of food, migration (mainly to South Africa), access to micro loans and savings as well as brewing beer for sale and work parties (Household survey, 2013 and Core Reference Group Discussions, 2013). Among these strategies are what FAO (2010) and Pinto *et al.* (2012) have identified as indigenous strategies, namely soil and water conservation practices such as pit-planting that are used to maintain soil moisture during the winter farming season and in summer when rainfall is erratic. However, farmers do not distinguish between coping and adaptation because the strategies are closely linked in practice. Besides, some coping strategies such as *ganyu*, remittances, gleaning and small businesses have been repeated and relied on for a long time, effectively equating them with adaptation due to the planning and on-going labour and other investments involved in the strategies.

A comparison of the coping strategies across the different wealth clusters shows some degree of overlap, but also the relevance of farmers’ existing asset base. As could be expected, farmers with more material assets tend to be in a stronger position to respond by selling household goods or by raising loans. Under a quarter of the respondents from better-off households reported selling livestock, compared to none from the very poor category and only one from the poor category. While households across all categories reported relying on *ganyu*, those in the better-off category were less likely to resort to this than households in the very poor and poor categories, who also relied more heavily on gleaning.

It is noteworthy that only three respondents, all from the better-off category, reported resorting to accessing micro loans and savings as a coping strategy. The small number could be because of the difficult times faced by farmers during the 2012/2013 farming season. Only a few farmers could afford the monthly subscriptions for the clubs with others suspending their membership due to its unaffordability. At the time of my study, many poor and very poor households owed money to Land O’ Lakes for the hybrid rice seed they had bought in advance of the farming season, which they were struggling to pay off because of the dry spell that affected the crop.

Medium to long-term responses

In terms of medium to long-term responses to livelihood stresses, the sustainable rural livelihoods framework identifies three clusters of livelihood strategies, all of which are of relevance to Mphunga Group Village, namely; i) livelihood diversification, ii) agricultural intensification/extensification, and iii) migration (Scoones, 1998 and 2005). All of these responses can be seen in Mphunga.

The first strategy, that of livelihood diversification, involves many of the short-term coping strategies outlined earlier, including *ganyu*, increasing reliance on remittances from migrants, the selling of livestock and other household assets; barter trade, more reliance on fishing, and changes in diet. Farmers are also combining livelihood diversification with agricultural intensification, for instance by diversifying away from intensified farming by concentrating more on poultry and small livestock. Almost half of the farmers in my survey (47 per cent) were opting to rear ducks, in addition to or instead of chickens, because ducks can swim during floods and thus, unlike chickens, will not drown. This is an example of an introduced adaptation strategy (FAO, 2010 and Osei, 2016), by the Red Cross Society (Suarezm 2009: 22-23).

According to SAWEG, there is an increasing demand for small loans from their women members. This was exacerbated by the 2012/2013 farming season during which crops were destroyed by drought. The village loans and savings clubs provide sources of cheaper loans on local terms and help members to meet urgent and immediate household needs such as farm inputs and food, especially in the absence of *ganyu*. Women are the predominant members of the village loans and savings clubs and in any case SAWEG membership and support for loan and savings clubs is exclusive to women. They exclusively target women who form their constituency and play a central role in decision-making around family and daily household needs. Men are not trusted with household income and women's previous experiences on this subject causes them not to trust male membership in their clubs said Kaambankadzange (Interview, 2013) who went to state that:

We are now caught up in a situation where more and more women, mainly outside of our membership, are wanting to join the savings clubs owing to the dire outcomes of the 2012/2013 farming year. At the same time these women either do not afford the joining and membership fees or as soon as they join they want to borrow before serving the qualifying period.

Agricultural intensification is a livelihood strategy that involves attempts to enhance natural capital, for instance in the context of Mphunga this involves: the use of treadle pumps for irrigation and winter cropping, inter-cropping of crops that withstand dry spells (cassava or maize) with those that withstand floods (rice) as well as planting winter thorn trees with crops, pit-planting and switching to new seed varieties. The Red Cross Society of Malawi and Action Aid promoted and collectively supplied the Kandulu, Mpahunga and Sani Maganga farmers with an agricultural warehouse and irrigation technology in the form of treadle pumps for use against droughts and dry spells. The Red Cross Society of Malawi organised farmers into irrigation clubs to better manage the demand and use of the equipment

but at the time of my study only the Chitukuko Irrigation Club was surviving out of the 10 clubs that were formed (Harry, Interview 2013).

Historically, Malawians have been labour migrants and a source of cheap labour in the South African mining and agricultural sectors, and the trend continues (Ndegwa, 2015). According to Trocaire (2014), even though there is no direct study linking migration to climate change, studies show that economically active people have migrated to urban areas and outside Malawi in pursuit of developing new livelihood alternatives. However, according to Stapleton *et al.*, (2017) it is difficult to untangle how climate change is partially or solely responsible for migration or how many hazards are directly influenced by climate change because droughts, floods and storms have occurred for millennia.

Migration is one of the coping and adaptation strategies undertaken mainly by younger farmers to find alternative sources of livelihoods outside Mphunga Group Village. As already indicated in section 6.4.4, my Core Reference Group members (April 2013) noted that a total of 88 people between 17-50 years (and mostly males) migrated to seek employment elsewhere between 2010 and 2013. Among them were 23 females and 65 males, with young and middle-aged males dominant migrating group, and young adult females are on the rise. The trend of migration in Mphunga has grown steadily due to extreme weather events, farming challenges, and what Trocaire (2014) refers to as inequality in land distribution, land degradation, and land market failures.

However, migration did not feature as a significant coping strategy in my household survey. Possible reasons for this could be that my survey respondents' interpreted migration as part of the "normal" repertoire of economic activities or because absent migrants who were not remitting or returning regularly to their families were excluded from the calculations of economic activities. Returned migrants also reported that initially they planned only to visit friends and family at farm estates or in South Africa to assess opportunities for a better life, only to end up staying on (either permanently or temporarily). During my field study, migrant returnees and potential new migrants were also struggling to raise the necessary travel funds and to organise and pay for travel documents. Four returnee migrants were back on home visits and were planning to go back to South Africa as soon as they raised travel money. One of them approached me to give him a lift on my way back to South Africa after this study.

Migrants send remittances and material goods back home to sustain their families, help them build better housing and pay the school fees of their siblings. The majority of remittances are sent through informal channels (for example friends, relatives and cross-border taxi drivers who offer a courier service), highlighting the significance of social capital in facilitating the flows of financial capital in the form of migrant remittances and goods. However, in Mphunga Group Village migration is disrupting farming production systems and undermining domestic markets. It is resulting in a loss of human capital

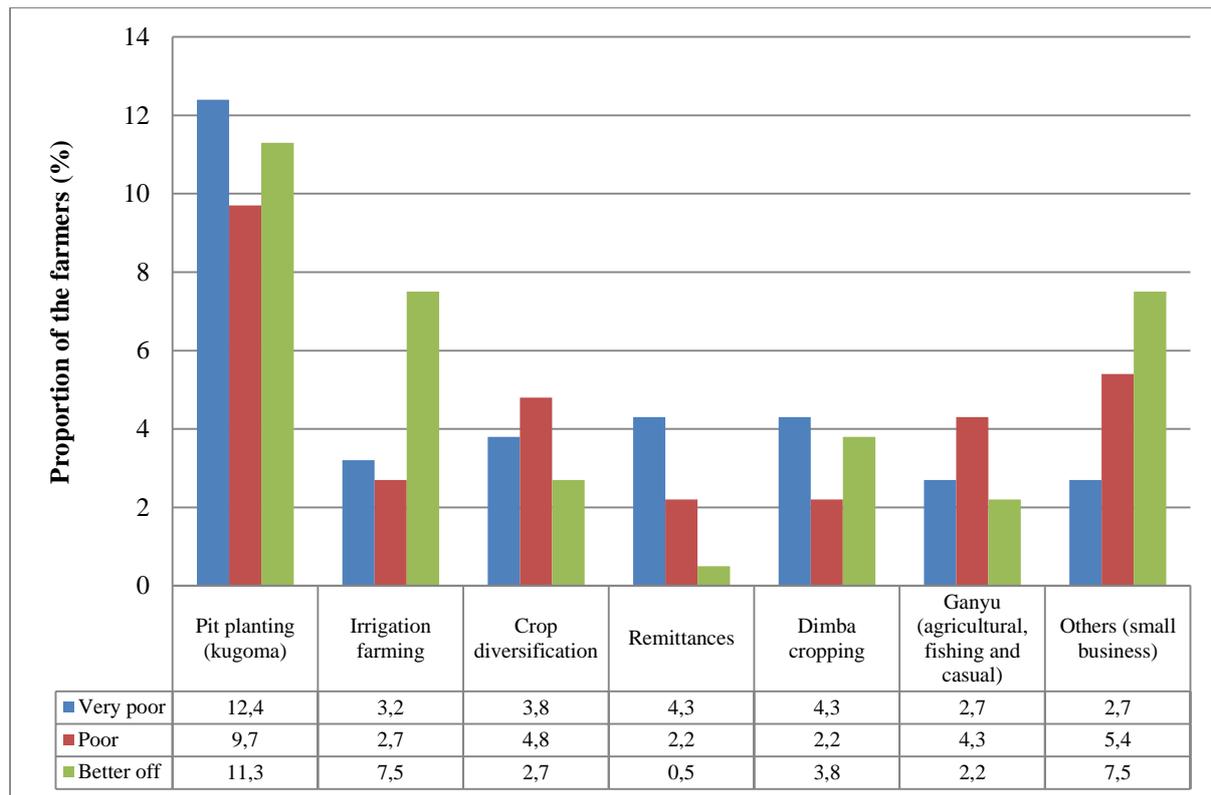
and having an adverse effect on community cohesion and family life. As noted by Margret (Interview, 2013):

Since my son left for South Africa in 2009, he has not visited us. He also stopped sending money and hardly calls home lately. The piece of land I inherited from my family is far from here and it is now lying fallow because I can't afford to till it in addition to the *dimba* (wetland gardens.)

A complex set of factors, including the availability of convertible assets and the strength of their social networks, determine farmers' choices around livelihood adaptation strategies. The strategies can be differentiated by asset portfolios held by farmers, age and ability to undertake pit-planting and *ganyu*, gender and place among other factors. The relative importance of the strategies farmers deploy depends on financial costs, the availability of labour and more importantly the estimated return on investment. Determining the resources they may need for pursuing different strategies is an important and difficult process when faced with limited options or competing needs. Scoones (1998) underscores this point by noting that to intensify farming production successfully, farmers need to combine different capitals which may not always be available to them, such as water and land (forms of natural capital) with farming inputs, improved technology and access to credit (forms of economic and social capital).

Pit-planting is particularly strategic for farmers with access to wetland gardens who can take advantage of the rich silted soil and high moisture levels in their gardens after floods. A third (43) of the 129 households in my household survey reported using this farming technique. However, I could not verify the origins of this adaptation strategy as farmers claimed that they have inherited it from previous generations and have always used it. Government agricultural extension officers who promote pit-planting for use during winter farming claim to have introduced it to the farmers (Kipandura, Interview 2013).

At an adaptation level, the main strategies being used by the surveyed households are outlined in Figure 8-5 below. The percentages and totals shown are based on the multiple responses given by each respondent and as such the number of respondents is more than 129. The responses are based on question B20 from Section B of the household survey questionnaire shown in Appendix 6.

Figure 8-5: Adaptation strategies of household survey respondents, by wealth cluster

Source: Household survey data, 2013

Note: i. Remittances are from within and outside Malawi, but mainly from South Africa.

ii. Irrigation is both by treadle pump, engine and watering can.

As noted by Grothmann and Patt (2005:201) farmers have to deal with a complex range of factors in their decision-making, including uncertainty about future climatic conditions and seasonal change. Inevitably they sometimes miscalculate the resources they need to invest in their coping and adaptation strategies. One example is provided by farmers who requested training on intercropping rice, cassava and maize from extension advisory officers, in the hope that one or two of these crops would survive whatever adverse weather conditions was coming their way, whether floods or drought, as rice grows in wet or water-logged conditions, cassava is drought resistant and maize does well under average weather conditions. During the 2012/2013 farming season, however, none of these crops did well and farmers were left with debts for the hybrid rice seed they had bought from Land O' Lakes.

Another example involved subsidised seed offered to farmers in each of the 13 villages making up Mphunga Group Village by two NGOs, COOPI and Action Aid also in 2012/2013. Because of the extremely erratic weather that season (rains coming earlier than expected, followed by a dry spell, then floods and then another long dry spell), the first planting failed and farmers had to replant twice

thereafter. However, they did not have spare seed for the third replant, by when the price of seed in the shops had gone up due to the high demand and scarcity. This also left some farmers in debt to the aid organisations, for example Land O' Lakes' rice seed initiative indebted members of the Mphunga Rice Farmers' Group.

The indigenous adaptation practices in use can also be categorised into three main categories identified by FAO (2010), namely; cutback strategies, income coping strategies (for example, remittances, small trade, *ganyu*), and agricultural coping strategies (wetland or *dimba* farming, pit-planting or *kugoma*, crop diversification, irrigation, improved varieties and breeds, changing of planting dates). In addition to the identified indigenous adaptation practices, the following introduced/external adaptation strategies are receiving growing attention; canal and tread pump irrigation, soil and plant related strategies such as the use of pesticides and fertilisers, improved crop seed varieties and breeds, and recommended agricultural practices (mixed cropping) from both government and NGO-supported agricultural extension officers.

8.4 Conclusion

Farmers' interactions with each other and the different experts they encounter tend to influence their own understandings of and responses to climate change. However, despite much public debate about the effects of climate change on rural livelihoods, rural smallholder farmers' voices and experiences are a fairly recent feature in the discourse. Regarding climate change as the preserve of experts disempowers farmers from engaging with the challenges of the phenomenon in their particular contexts with confidence and authority. Even though poor people might not fully understand the complex science and processes of climate change, they are already dealing with climate risks and disasters. A growing body of research on climate change accords importance to local peoples' understandings of climate change and there is increasing consensus amongst scholars that perceptions are central to how they respond. To this end, farmers' local knowledge, observations and interpretations have major implications for their livelihood choices. Farmers' understandings and perceptions of climate change knowledge inform their responses to the phenomenon. They translate such understandings and perceptions into their lived realities and are informed by them in their farming investment decisions and livelihood choices.

Smallholder farming is particularly vulnerable to climate change and extreme weather events. The understandings of climate change among smallholder farmers at Mphunga are informed by a number of factors. While the majority of them are aware of climatic changes and the resultant effects on farming and livelihoods, their understanding of the science of climate change is generally. The three most common explanatory frameworks for climate change offered by farmers revolve around natural forces,

and human activities encompassing spiritual and cultural issues on the one hand and ‘Western’ modernisation and pollution by industrial development on the other hand. Age, gender, religion and levels of education all have an influence on how farmers frame issues of climate change, with access to alternative information sources such as media playing a role in this regard. Younger farmers who have comparatively higher levels of formal education than elderly farmers have greater access to scientific information about climate change.

However, despite the challenges they face, farmers are engaging with the challenges that are impacting on them from their own standpoint. Whilst other strategies and the deployment of social capital have always been there, the degree of reliance of these and their frequent use has intensified due to survival challenges resulting from extreme weather events. The profiled farmers demonstrate their ability to marshal different forms of capital, use of personal skills and networks to identify opportunities and engage in multiple livelihood strategies beyond farming. The life story of Janet shows that despite the gender norms that generally marginalise women, being a woman is not always an obstacle to success in a patriarchal society like Mphunga.

Chapter 9: Discussion of research findings and conclusion

In this final chapter, I review the main findings from my study. My discussion is organised in four sections, beginning with an assessment of the conceptual and methodological issues arising from my actor-oriented approach and use of the sustainable rural livelihoods framework. In section 2, I consider my findings in relation to the four main research questions that have structured my study, namely:

1. What are smallholder farmers' understandings of climate change and its impact on their livelihoods in my study site and what informs their understandings of the phenomena?
2. How are smallholder farmers responding to the effects of climate change? More specifically, what coping and/or adaptation strategies are they using to secure their livelihoods?
3. Which expert agencies are active in my study site and how are farmers engaging with them and responding to their information, advice and support they are offering?
4. How significant are social networks and social capital in the farmers' response strategies?

In section 3, I reflect on the implications of my study for future research and policymaking before concluding with some brief closing comments in section 4.

9.1 Assessment of my conceptual framework and methodology

The conceptual framework for my study has been structured around three main and intersecting axes: the actor-oriented approach to research, the sustainable livelihoods framework and the concept of social capital. Even though they were discussed in a sequential manner in Chapter 3 for ease of organising my discussion, they are clearly inter-related as shown in my discussion of my research findings in Chapter 6 through to 8. The actor-oriented approach was critical for facilitating my identification of the different perspectives held by various actors in Mphunga Group Village and the “multiple social realities” (Long, 2001) that are shaping their understandings of and responses to climate change in the choices they are making with regard to their livelihood strategies and the social relationships on which they rely. The main actors in my study are the farmers from Mphunga Group Village, young and old and further stratified in terms of gender and relative wealth ranking, along with various external experts from organisations at different levels (ward, district, national and international).

In analysing the dynamics among the different actors, I have worked with Long's ideas around "social interface"²² that draws attention to the processes of social interaction and negotiation among the identified actors and the importance of analysing this interface. Thus while elderly farmers were drawing primarily on their experience and local knowledge systems in understanding the issues of climate change, younger farmers were more likely to mimic the scientific language and concepts that are used by the experts that they encounter. The interface between these two knowledge systems and among actors was an arena in which different ways of understanding both interacted and collided.

Boesen and Therkildsen (2005:201) have described a weakness of "conventional approaches to climate change adaptation and support" as the failure "to understand the politics of power." The actor-oriented approach helped me in analysing and paying attention to the different voices and ways of understanding the phenomenon of climate change among different actors, and to a lesser extent understand how power operates among the different actors in Mphunga Group Village. For example, relative to local government agents and external agencies, smallholder farmers have very little power in determining when and how these institutions enter their village or effectively coordinate their activities with the relevant village structures. Thus the weakened local government structures, namely; the Village Development Committee and the Village Civil Protection Committee are poorly resourced and as a result subjugated to the whims and powers of the influential and resourced external agencies. They have even less power over the national and global dynamics that are leading to climate change and access to the international policy framework where responses to this threat are formulated. This scenario serves the interests of experts from the external agencies who wield power and influence to shape discourse, information and technology resources around climate change issues and accessible by farmers. All this reveals complex power relationships and arrangements among experts and farmers.

However, within the village gender, age, education and wealth status play an important role in shaping access to information on and understanding of climate change issues among the farmers. For instance, young farmers who serve on the village's Civil Protection Committee wield tremendous power in determining the distribution of relief aid during floods and in their dealings with NGOs like COOPI, Action Aid and the Red Cross Society of Malawi. Those who serve as multipliers are also influential around key decisions taken in relation to access to farming inputs, new technologies and extension advice. Given her level of education and her role and positions on various structures in Mphunga and beyond, Janet is an influential farmer whose advice and inputs are sought by many. The 'Professor', an elderly strong custodian, priest and cultural expert of the secret cult, *Gule waMkulu* cultural rites and

22 As discussed in chapter 3, a social interface is a critical point of intersection between different life worlds, social fields or levels of social organisation, where social discontinuities based upon discrepancies in values, interests, knowledge and power, are most likely to be located (Long, 2001:243).

ceremonies, has no formal education at all and yet he is quite influential across the *Gule waMkulu* communities in Malawi, Zambia and Mozambique. Within the official power matrix and the formal institutions of power, the young farmers, family clan heads, Janet and the ‘Professor’ do not appear as powerful to a casual observer and yet they are fairly influential.

The issue of power cannot be simplistically conceived as an instrument for oppressing the powerless, or concentrating on those in fleeting possession of power and how they use it. Villarreal (1992:255) states that power analysis should not only focus on access to resources, “rigid hierarchal categories and hegemonic ideologies because the perceived victims of power are not permanently passive.” To this extent the actor-oriented approach was also key in facilitating my analysis of the gendered power relations between men and women beyond access to resources and rigid hierarchies. For example, during my study both men and women exercised collective power during the village mapping and transect walk within their gender groups. Their individual and collective power was expressed through different channels and symbols, for example positions held, marital status and roles during events. For example, among women, although a village head, young girl, widow, divorcee and an elderly woman faced the same socio-economic conditions and challenges in Mphunga, they had different levels of relations and access to power.

My key informant interviews with some government officials also revealed the institutional tensions and power dynamics around the exercise of leadership on climate change processes among the different actors at all levels. Here a key question is whether the Malawi’s agenda should be set by subject matter expertise and political control of climate-change funds at the expense of other considerations. Central players such as the Ministry of Finance and the Ministry of Economic Planning and Development lead the mainstreaming of climate change policy and control the financial resources from funders and development partners. The Departments of Local Government and National Housing; Environmental Affairs and Climate Change and Agriculture and Food Security are at the forefront of implementing interventions on the ground, while Malawi’s civil society sector seems side-lined.

Turning to the sustainable rural livelihoods framework, it proved fruitful in helping me appreciate the complex interplay of context, assets, institutions and livelihood strategies that are shaping farmers’ understandings of and responses to climate change, and to understand why and how some are better able to respond to shocks and build more sustainable livelihoods than others. The livelihoods framework helped me to identify farmers’ assets and institutional processes informing their livelihood strategies and outcomes, thus enabling me to understand the key features of their social world. It did not only identify the important assets of Mphunga farmers’ households and livelihood strategies, but also considered their trends over time and the impacts of social, economic and environmental shocks and stresses. This aspect of the framework proved important in my integration of insights across different

sectors. Because the framework is concerned with the ability of social actors to improve their livelihoods and capabilities in the face of shocks and stresses, I found it most relevant for an assessment of the farmers' coping and adaptation strategies against climate change. Although it may have been criticised the approach has never really died in this regard.

In the context of rapid and uncertain changes, the approach provides a practical framework for evidence-based intervention and analysis rather than a "how-to" recipe. It was useful for bringing different aspects gender, poverty, natural resources management and governance together. The framework recognised that even poor people have resources and networks that they can draw upon to sustain themselves. It worked well with Long's actor-oriented approach. Long (2001) makes it clear livelihoods also involve activities aimed at wealth accumulation and affirming personal and group identities. He drew my attention to the different actor strategies and the conditions under which they arise in a powerful way. This made the approach inclusive and participatory, rather than a top-down imposition from experts, making it flexible and adaptable to local context. It was empowering for non-experts by making the issues accessible for them to engage. Long's (2001) concern with social actors, structure and agency effectively integrated the actor-oriented approach and sustainable livelihoods framework. The approach promoted community-based learning among farmers as well as between them and experts, thus building from existing local knowledge and experiences. Here my commitment to an actor-oriented approach as well as my mixed-methods research design were helpful in this process.

Issues of gender relations were particularly important for rural livelihoods in Mphunga, as my attention to all the actors in my research site made clear. Whilst the intra-household gender differences in terms of income and education level are not that stark, female farmers (particularly widows and divorcees) tend to be disadvantaged in relation to male farmers and female-headed households in comparison to male-headed ones in numerous respects. This was particularly evident with regards to accessing irrigation equipment, *ganyu* and wetlands for winter farming, as well as in terms of public voice and access to experts for most but, significantly, as the case of Janet shows, not all women farmers in my study.

9.2 Findings in relation to my research questions

The main purpose of my study was to explore smallholder farmers' understandings of and their responses to the impacts of climate change and extreme weather patterns on their livelihoods. Of particular interest was to investigate how farmers' interactions with different sets of experts influence their understanding and responses, and the significance of social capital in their response strategies. The main findings of my study highlight the farmers' awareness of climate change and extreme weather events among both young and elderly farmers; how their interactions with each other and the different

experts they encounter also influence their own understandings of and responses to climate change. Social practices, networks, religion, social and wealth status, age and education further inform their perceptions of the phenomenon. Three main explanatory frameworks, inform farmers' understandings of climate change causes, and yet others are not certain about the causes of climate change. A number of local and external coping and adaptive strategies are being deployed by farmers, and experts from funders, NGO and government agencies are playing important roles in enhancing their resilience against climate change. However, the agencies have also entrenched a dependency syndrome among the farmers, and the agencies' poor coordination and competition results in unnecessary duplication of services. Social capital in the form of social networks, trust, empathy, reciprocity, unpaid forms of social ad voluntary support plays a significant role in how farmers cope with the impacts of extreme weather events, and negotiate daily life.

9.2.1 Smallholder farmers' understandings of climate change and its impact on their livelihoods in my study site

Although floods and droughts are not a new phenomenon in Mphunga Group Village, their frequency and intensity have increased in recent years as confirmed by both official weather records and local farmers' reports. Over the last 12 years farmers have experienced very severe floods that have displaced them from their former homes and destroyed property and livelihoods. As a result of these experiences and their interactions with experts from different agencies at various levels farmers recognise that the climate is indeed changing. There is a complex interplay of both internal and external factors shaping farmers' understandings of climate change impacts that manifest as extreme weather events. They are marshalling a complex repertoire of local knowledge systems and beliefs, tempered by their own experiences, observations and social location in terms of religion, social status, age and education.

The interplay of these dynamics can be seen in the main explanatory frameworks for climate change available in Mphunga, namely: natural causes that are beyond human control (the most common position); human activities that have angered God or Allah, and human activities in the form of western-style modernisation and industrial development. Although this particular explanation appears to align closely with the explanations of the global scientific community, it is combined with a range of other human-driven causes such as veld fires, deforestation, war and conflicts. This explanatory framework was cited mainly by both male and female younger farmers who interact often with NGO experts, and particularly Red Cross Society of Malawi and COOPI.

A sizeable number of my respondents (28 per cent) have some understanding about climate change but had no idea what actually causes it. These were mostly poor, illiterate and elderly farmers and their relative size is revealing in itself about the erosion of old certainties. Although climate change science

is filtering into their explanatory frameworks, it is still filtered through local knowledge systems and low levels of science literacy, especially among older farmers with low levels of education.

Age, and education emerged as important variables that influence how farmers understand and frame issues of climate change. Young and elderly farmers seem to value different knowledge systems around climate change, with younger farmers that have a better level of education relying on “scientific” knowledge whilst elderly and more conservative farmers rely on local/traditional” knowledge. As discussed in Chapter 8, young farmers (particularly the multipliers) tend to parrot the climate change discourse from the experts they interact with, without fully understanding the meaning of the concepts they use. For example, they used terms like global warming to legitimise their authority and claims on climate science and ‘expertise.’ In this way they become agents for the scientific knowledge system on climate change advanced by experts, without necessarily representing that knowledge effectively. Elderly farmers, on the other hand, tend to resist the dominant discourses by deploying a “countervailing” argument and position that offers “alternative and more locally-rooted points of view” (Long, 1999:4). The resultant subtle tensions between young and elderly farmers reveal a complex relationship between experts and farmers’ local knowledge systems.

Farmers’ understandings of the livelihood risk they face from climate change informs their coping and adaptive measures. Grothmann and Patt (2005) observe that the ability to understand the risk from climate change, along with the capacity to anticipate, endure and recuperate from its effects are determined by a variety of factors. These include socio-cognitive skills, material resources and access to advisory support services and technologies rendered by experts and their agents. The authors further note that the socio-cognitive aspects of adaptation to climate change are just as important as the socio-economic and institutional factors and that the process of decision-making (whether collectively or individually and publicly or privately) during adaptation is extremely complicated. However, the process of understanding and adapting to climate change is a socio-cognitive issue as well as a socio-economic, technological and cultural issue. This argument is supported by Berkhout (2012:101) who states that “relationships and collaborations between farmers and power structures, institutions and other external contacts also influence their adaptive choice and capacity.”

The juxtaposition of experts’ scientific knowledge with grassroots-based and experiential local knowledge of farmers reflects subtle power struggles over meanings and strategic relationships. Long (2001) states that like knowledge, power is the result of complex negotiations, and requires networks of actors and constituencies. Dominance and power are subtly expressed through the use of particular behaviours and non-verbal ways, by multipliers and experts, which denote superiority that is often hidden to the outsider. This finding confirms what Chambers (1997:78) refers to as the behaviour of

“uppers” (or elites) in many developing contexts. The expression of dominance, superiority and power through language, accessories, behaviour and association is fairly entrenched in Mphunga community.

At the same time, in addition to the livelihood disruptions brought about by floods, farmers also see some livelihood benefits arising from extreme weather events. They point out positive spin-offs from floods such as the increased moisture levels in the soil which they use during pit-planting. This enhances their winter cropping and reduces the hard labour. Floods deposit rich silt soil on the riverbanks which farmers take advantage of and grow beans in winter. Zex’s wetland garden is on the banks of Lifidzi River and each flood deposits rich silt soil that he uses for growing vegetables during winter. Farmers also understand that extreme weather events come with ‘the benefit’ of donor relief aid from NGOs and government departments as well as politicians and churches who immediately descend on Mphunga after floods. Consequently, floods are synonymous with relief aid and behind the growing culture of dependency syndrome that has entrenched. Associated with this is a growing culture of floods, victimhood and relief expectations that farmers now anticipate and feel entitled to as a right.

9.2.2 Farmers’ responses to the effects of climate change

The ability of farmers to respond effectively to climate change lies partly with their recognition of the reality of long-term climate change and the envisaged detrimental effects on their livelihoods. A variety of factors inform farmers’ decisions to invest in adaptation and their options for coping and adaptation. Access to different forms of capital, seasonality, wealth status, technology, media, knowledge and skills, farming experience and observations, social interactions with fellow farmers and experts, age, gender and levels of education play an important role in farmers’ decisions and determination of appropriate response strategies and choices. Here the sustainable livelihoods framework was helpful in identifying and understanding the context and conditions in which farmers are located and subjected, as well as analysis of the livelihood resources (the different forms of capital being deployed by the farmers), strategies and institutional processes at play. At both informal and formal levels, farmers are working with a range of strategies straddling coping and adaptation categories. Intensification, extensification, diversification and migration can be seen at work in Mphunga and they take different combinations as determined by farmers’ resource portfolios and capacity. However, as a livelihood strategy, agricultural extensification is not a viable long-term strategy for many farmers due to the extreme pressure and availability of arable land. Consequently, some farmers have extended their farms into wetlands and riverbanks but even this option is rapidly becoming impractical as land grows scarcer.

The level of investment and related costs, range of adaptation options and other factors determine farmers’ options for adaptation. Adaptive measures that are simple, easy to understand and replicable are adopted quicker and mostly by the poorer farmers. Some of the adaptation strategies that are being

pursued by farmers like Alima, Margret and Zex include: rearing ducks in addition to or as opposed to chickens, crop diversification between drought (cassava) and flood (resistant) resistant crops in addition to the traditional maize and beans, uptake of irrigation farming, investing in food storage technologies and the setting up of a flood alerts and early warning systems. The measures are being adopted at both levels, that is collectively (flood alert and irrigation clubs) whilst others are individually undertaken. The strategies are a combination of local (traditional or indigenous) and introduced adaptation practices. Local strategies include: income coping measures, cutting back and agricultural coping strategies, which Scoones (1998) has usefully broken into crop diversification, livestock diversification strategies, and diversification to non-farming activities.

With support from NGOs, livelihood diversification strategies are being promoted by experts as key for enhancing resilience in the face of extreme weather events and associated vulnerabilities. They also change the planting dates and periods as soil and moisture conservation strategies. Among the external or introduced adaptation strategies being used by farmers are: irrigation, recommended agricultural practices, soil and plant-related strategies such as use of pesticides and chemical fertilisers, and improved crop varieties and animal breeds (including ducks). As already described in Chapter 8, farmers are diversifying into small livestock farming and switching to more drought-resistant crops such as cassava, with support from Action Aid and Land O' Lakes. They are encouraged to rear hardy animals like goats and donkeys as well as use irrigation farming.

According to Scoones (1998), the agricultural intensification/extensification response strategies of better-off households are more dependent on capital investment and often supported by external inputs. However, the intensification strategies being used by farmers in Mphunga are rather labour-intensive, and dependent on household labour as well as work parties or labour pools informally organised by local clubs like Chinzake, Kabwerebwere and Takumana where Alima and Zeinub are members. Henry is an exception in this regard because he relies on hired *ganyu* labour. Whilst farmers are turning to diversification strategies, with help from NGOs, to cope with short-term adversity and facilitate their adaptation activities, the likes of Henry and Janet are mainly diversifying their livelihoods for accumulation and to cushion themselves against future shocks. Livelihood diversification in Mphunga Group Village is thus catering for different needs, and occurring as a deliberate household strategy and in response to specific crises.

According to Stringer *et al*, (2010), Malawi's National Adaptation Plan of Action (NAPA) highlights six additional adaptation strategies²³ that are either externally-driven or internally driven. In the context of Mphunga the establishment of CBOs at the behest of some NGOs like Action Aid, COOPI and SAWEG is entrenching and localising the internal and external adaptation strategies. And farmers are not limiting themselves to specific approaches or sequencing of their response strategies (coping, adaptation and then mitigation) in addressing climate change, as suggested by Grothmann and Patt (2005) and McCarthy *et al*, (2007). The increasing reliance on *ganyu* is leading to a trend where many farmers, especially the very poor ones, are perpetually engaged in *ganyu* for survival, thus diverting their time and labour from their own fields, driving them deeper into poverty.

Ganyu now seems a primary livelihood strategy and guaranteed source of food and cash for many farmers at the cost of their own farming. The entrenchment of *ganyu* as a livelihood strategy renders it as both a coping and adaptation strategy for different households, depending on how much and how often they invest their labour and time into it. The regularity of and social investment in *ganyu* makes it more than just a coping strategy. It is effectively a form of part-time employment whose availability is guaranteed for as long as farming continues and poor and better-off farmers need each other's services.

Climate change is also compounding the pressure towards migration as a response strategy. As Ndegwa (2016) and Trocaire (2014) point out, the trend of Malawian labour-migration to South Africa is historical and has continued to the present day. Owing to many pressures, including land distribution inequity and economic challenges that are worsened by other factors such as extreme weather events impinging on farming, migration is resurging. However, as Trocaire (2014) and Stapleton *et al*, (2017) stated, there is no research directly linking migration to climate change in as much as the phenomenon may be a contributing factor. In Mphunga, migration has been historically undertaken by males and female migration is a recent phenomenon and as my study found out farmers are engaged in migration as a diversification and response strategy to climate change impacts. The failure of farming as an effective livelihood strategy and mainstream of both the local and national economy is linked to climate change. Both men and women are migrating out of Mphunga to farming estates, urban centres within and the majority of migrants are moving to South Africa. Remittances are therefore playing an important role in supporting households. However, migration has also brought about social challenges (promiscuity and HIV/AIDS infection) and broken families where men abandoned their families as has

23 i) switching to climate-resilient crop and livestock varieties, ii) livelihood diversification through training and education of farmers and communities in natural resource management, iii) improved land husbandry techniques, iv) irrigation services, v) food processing and vi) shifting to non-food crops like jatropha for biofuel.

happened to Alima and Zeinub and Saison's brother who has cut ties with the family after they moved to South Africa. HIV/AIDS infection

The gender and power relations between men and women with regards to land ownership and production have implications for coping and adaptation strategies against climate change. Most young men do not hesitate to migrate because they own little or no land at all, and they hope to acquire assets through employment and savings when they migrate out of Malawi. They gain control and realign the matrilineal power relations through migrant income opportunities, engaging in polygamy as was the case with Asefu, remittances and accumulation of wealth over women. Even though the push factors for farmers to leave Mphunga are high, migrating within Malawi is currently not an attractive option for most due to the low wages in comparison to moving outside the country. However, the cost of migrating outside Malawi is prohibitively high for some farmers like Saison and Harry to whom the option remains an elusive dream.

In the face of experts' interventions and a mix of adopted adaptive strategies over time, it was not easy to ascertain whether or not some of the farmers' adaptation strategies were indeed "local" or not. For example, the issue of rearing ducks was claimed as a local adaptation strategy by farmers and Red Cross Society field officers until I read about its origins from a report by Baumhardt (2009). Therefore, linking up meso adaptation issues and activities with micro and macro level debates was challenging. It led me to question the validity of drawing tight boundaries around what constitutes "local" and for whom, and to recognise the porous boundaries between local and expert knowledge systems.

9.2.3 Farmers' engagement with experts and responses to their information and advice

What my study shows is that farmers are in constant contact with a range of experts who interface with them to offer relief aid, community development and support services or to undertake research and provide assessments in the aftermath of floods and droughts. The experts include: government technocrats (policymakers and technical subject experts like environmental, irrigation, land management and community experts from Salima District Assembly), funders and field extension officers from NGOs and government departments, the media as well as researchers like myself. The services being offered by external experts can be broken down into five main categories, namely: i) providing immediate relief aid in the form of food, household utensils, farm inputs and second-hand clothes during or soon after floods and droughts, ii) undertaking scoping missions for funding and programme development, iii) carrying out research to inform policy or for academic and other purposes, iv) providing social services like health and education, and v) providing community development services such as awareness raising, agricultural extension, building capacity and skills to enhance

livelihood resilience and flood early warning. The level of expert involvement varies from once-off, ad hoc interventions to medium and long-term programmatic engagement.

The Salima District Assembly and lower structures of local government (for example the Village Civil Protection Committee and the Village Development Committee) have a mandate to interface with, screen and coordinate the roles and services of the different experts that provide services to farmers. However, they lack the capacity and resources to play their mandated roles and to coordinate the various role players working in their community in order to reduce duplication of effort and services. Farmers are also interacting amongst themselves individually and collectively through social networks, clubs and associations to exchange farming knowledge, market information and learning with and from one another. A multiplier and member of the Village Civil Protection Committee like Harry, Asefu the VDC Chair, Chief Chadza the reservoir of the Mphunga village history, Janet the women's rights activist, Henry the richest farmer and a cultural expert like Professor, among others, also play influential roles in the community. Social capital plays a significant role in farmers' interactions, and factors like age, education, social status, religion and others determine the access to adaptation strategies around climate change.

Experts from research institutions, international organisations and funders are also using a common strategy of working through field-based officers and village-based multipliers who are often regarded as local experts in their own right. The NGO and government field officials are the main link between international and national climate change experts, funders, policymakers and farmers. Although they are not the official experts on climate change, local officials (and their respective multipliers) are important transmitters of key climate change messages, technologies and extension advice to farmers on the ground. They help to translate policy, effectively becoming local experts in the eyes of farmers. In this regard, the multipliers are key contacts through which farmers are exposed to scientific knowledge on climate change, and the external agencies such as local NGOs are important channels for transmitting expert advice on a range of issues, brokering new farming technologies and distributing information on climate change to farmers. However, their technical and scientific knowledge around climate change is rather limited, because they have not been specifically trained for and on such issues.

As discussed in Chapter 6, COOPI, Action Aid and the Red Cross Society of Malawi are the NGOs that had had the longest presence in Mphunga Group Village at the time of my research, exceeding 10 years. In this time they had been involved in a variety of livelihood support activities and building community resilience capacity against the natural disaster risks associated with climate change. With regards to their attitudes towards the different experts, farmers are generally receptive and welcoming of the range of services rendered to them. With the exception of Red Cross Society of Malawi which ran a specific and well-received climate change awareness project from 2007-2012, the other organisations are

addressing climate change issues rather indirectly, through community development programmes aimed at integrating natural disaster risk reduction, capacity building and livelihood resilience through farmer development and extension services.

Except for SAWEG, the five active NGOs are local offices of international organisations that receive material resources from donors and access the latest information and technologies on climate change, natural disasters, farming and community development. Hence, they command huge influence with farmers due to their resource endowments in comparison to government departments operating in the same village. The NGOs provide farmers (very poor, poor and better-off) with relief aid, farm inputs and new technologies as part of the livelihood resilience and diversification strategy. At the same meetings, farmers are served with refreshments, meals and or allowances for attending. Similar forums hosted by the Salima District Assembly or the Agricultural Extension Services officials do not come with packages of relief aid and inputs incentives and hence they are generally poorly attended. Some government officials have resorted to hosting joint activities with the better-resourced NGOs to circumvent the problem of poor attendance by farmers.

The long relationship and different forms of support rendered during stressful times seem to play a role in deepening a trustful and dependency working relationship between farmers, NGOs and government extension services. Farmers are also keenly receiving training and key messages on integrated community development services that are infused with information on strategies for natural disaster and vulnerability risk reduction from the other organisations. Whilst women constituted the majority (73 per cent) of my respondents, the experts interfacing with farmers are mostly male field extension officers from government and NGOs. Their interventions are often gender-blind because they do not take into account women's specific experiences, needs and social situation (for example, lower literacy levels and lack of control over household income). Over time, farmers tend to develop trustful relationships with local the extension officers who work with them for a long time. Elderly farmers trust field officers with whom they have had good and long working relationships, and from whom they receive advice, information and recommendations on climate-smart agriculture technologies. On the other hand, young farmers prefer to engage more with the NGO and other experts.

9.2.4 The significance of social capital

Social networks and social capital emerge in my study as central for supporting farmers' livelihood strategies in the face of climate change and other challenges. They enable farmers to access various forms of moral, spiritual, material and social support from experts, peers, family and neighbours through formal and informal kinship, clubs and association arrangements. Bebbington (1999) states that social capital is the most critical asset, especially for rural communities, because it facilitates access that is

necessary to diversify and expand their asset portfolios. Social capital and networks form the first line of support beyond the immediate household, with women being far more dependent on both informal and formal associations compared to men. The informal and formal social networks play an important role in cushioning farmers against the adverse impacts of extreme weather events, enhancing their resilience and knowledge, and providing information and support. Formal social networks of experts are providing farmers with a range of farming support services and materials outlined in section 9.2.3 above. Informal social networks and practices are playing a supportive role at individual, household and community levels through the provision of unpaid social, moral and spiritual support towards individuals and groups. They also are local conduits for information about *ganyu*, markets and farming.

Farmers belonging to several informal and formal networks tend to have several options for accessing information relating to climate change, produce markets, input prices and new farming technologies. My study confirms the findings of research by Abenakyo *et al*, (2007) which found out that the dimensions of social capital norms and collective action were significantly related to the adoption of farming innovations and uptake of new technologies. The ineffectiveness of Malawi's decentralisation policy weakens the local government's administrative structures with no resources and capacity to deliver their mandate. Holmes *et al*, (2018) allude to the challenges of the country's ADCs and VDCs that are plagued by structural and pragmatic capacities such as lack of funding, poor coordination, and officials with limited understanding of their roles. As a result, the ineffective village structures leave farmers with no option but to turn to NGOs. Collective action, as a form of social capital at this level is quite weak and does not offer farmers much value. Therefore, Action Aid, COOPI and the Red Cross Society of Malawi are playing a key role in supporting local structures such as the District and Village Civil Protection Committees with relief aid, training and equipment for flood early warning system.

Social capital is rarely used entirely on its own and as noted by DfID (1999:9) "human capital is indeed a decisive influence in the role and utilisation of the other capitals, hence changes in human capital should be assessed in terms of their effects on the other capitals." Overall farmers with high stocks of social capital are well placed to solve individual and community problems, even though they are not always available to do so due to other commitments (for example Henry, Janet and Professor). Henry's high stocks of economic capital, business knowledge and skills as well as his high social help him to access networks and other forms of capital. Professor's cultural knowledge, influence and social status in officiating at *Gule waMkulu* ceremonies gives him access to social capital beyond Mphunga. And Janet's human and economic capital stocks tend to mediate her access to social capital within Mphunga, NGO and CBO networks. Social capital and networks provide informal safety net during times of lack and insecurity, and thus compensate "for lack of other types of capital" (Morse *et al*, 2009:3). In addition to the reserves of social capital that are embedded in group networks, clubs, associations, religious groups, and kinship networks and relationships, farmers are also mobilising other capitals, namely:

financial (agricultural inputs and credit, loans and savings clubs, markets for agricultural products); human capital (various skills and knowledge of culture and business, extension services and education/adult literacy classes); and natural capital (land, wetlands, water for irrigation).

Pelling and High (2005:19) highlight the difference between informal and formal social capital thus: whereas “formalised social capital is found in officially recognised civic associations, informal social capital is found in neighbourliness, kin group support or friendship.” As a result of the formalised working relationships that exist between farmers and experts and the informal personal relationships among them that may follow, a number of community-based organisations were formed on the bedrock of the social capital represented by these relationships. New forms of social support are also emerging, such as Chinyama Adult Literacy and Takondwera Savings Clubs as well as CBOs like Manthimba and Ndindi Resource Centre formed at the behest of Action Aid. The networks are contributing towards increased flows of information and new forms of social. The nature of social networks and structures among farmers is, however, not static. Community and family relations are under strain from the regular livelihood stresses which are eroding social bonds. The impacts of migrant labour on the stability of families and the community is an example. Alima and Saison’s families have been impacted adversely from the migration of family members.

In Mphunga is what Derbile, File, and Dongzagla (2016) describe as the “a double tragedy” of agricultural vulnerability in which farmers are operating and the impact on their livelihood assets. On the one hand, farmers’ portfolios of different livelihood capitals are helping them to deal with shocks such as extreme weather events while on the other, the shocks and stresses are eroding their capitals. This is illustrated in the life histories of the four male respondents, who, although still ranked in the ‘better off’ category, they have experienced a downward trajectory which is eroding whatever is left of their assets. In this context social capital becomes a significant bulwark against the further erosion of their stocks of any other capitals they may have.

Despite its positive side, social capital is also coming with negative externalities. For example, the rejection of Mphunga farmers by the Kandulu community who label them as refugees “MaBurundi.” Alima had her property grabbed by her in-laws when her husband separated from her. These examples reveal what Du Toit and Neves (2009:28) call the “dark side” of social capital and “the vulnerability and labelling of outsiders caught up in unequal social power relations from social networks.” When social capital is used to exclude it ceases to be a positive resource that farmers can use to respond to the impacts of climate change. The tension between the residents of Mphunga and Kandulu Group Villages is diverting energy away from the collective search for long-term solutions for everyone affected by the flooding in the district.

9.3 The research and policy implications of my study

9.3.1 Research implications

Whilst my research findings are specific to Mphunga Group Village, the general issues it raises are relevant for any other contexts where socio-economic, environmental and climate change issues are similar to those in Mphunga.

As indicated in my introductory chapter, my role as a researcher set me up as an “expert” in the eyes of the Mphunga farmers (and some NGO field officers). However, I also negotiated my status as a son in the eyes of some elderly farmers, and as a brother to others as well as an intermediary and knowledge broker between farmers and other experts. Negotiating these different roles, whether directly or indirectly, consciously or unconsciously, was challenging. I reminded myself about these different roles all the time and insisted on relating with the farmers in a formal role for most of the time. After I left my study site I continued to engage with the ethical dilemma of whether or not I should have rendered some form of material assistance to the households which were in dire need of food. Although I had decided not to entertain requests for material help during my study at the onset, at a personal level I felt obliged to consider rendering some form of assistance to the starving children who were in need.

In this context and in my capacity as a researcher, my first recommendation is to myself, to share my research findings with the farmers who are the primary subject of the study, as well as with other key role players such as the NGOs, the Salima District Assembly and government extension officials responsible for Mphunga Group Village. The study could make a contribution to discussions around lasting solutions to the floods disrupting farmers’ livelihoods and build towards policy development.

With regards to further research, an important issue for consideration is gender and climate change and how vulnerability to climate change and adaptation capacity may be affected by gender dynamics in Malawi. Relatively, little work has been done on gender and climate change, and more specifically how the phenomenon affects women. And then, as Trocaire (2014) indicated, specific studies on migration and climate change warrant research given the growing prominence of this subject internationally. Role players such as policy research and academic institutions, GenderCC, the UN Women’s Fund for Gender Equality (Malawi office) and local role players like the University of Malawi’s Centre for Social Research and SAWEG could support such research work.

Further research on adaptive strategies and how they influence rural livelihood strategies is also important. To this extent, the policy implications of my study require on-going analysis and a better understanding of the local climate change scenarios and the local adaptive strategies (including capacities) in the pursuit of sustainable adaptation outcomes for farmers. In addition, the operationalisation of Malawi's decentralisation could be enhanced to strengthen the local government structures, capacities, resourcing and coordination to improve collection action and adaptive capacity at community level where the impacts of climate change are felt the most. The strengthening of decentralisation could also explore the Local Adaptation Programme of Action (NAPAs) model and deepen community-based adaptation processes towards the democratisation of climate change governance. Also more research on the local belief systems around climate change and a follow through on the farmers' explanatory frameworks in comparative perspective could help contribute grassroots community knowledge into the discourse. A comparison of the farmers' belief system and explanation of climate change causalities with research in other parts of Malawi, and the role of religion as well as school education on climate change could inform policy thinking and the national discourse.

There are several limitations to this study that also provide avenues for future research. Longitudinal research on the dynamics between climate risk perception, social capital and precautionary behaviour is important. Looking deeper into the concept of social capital and assessing how the different forms of social capital have an influence on flood risk perception, coping strategy and self-efficacy would be recommended.

In determining the economic value of social capital, such future studies could assess the extent to which social capital decreases the damage potential of floods and droughts, thus providing for contrasting of social capital with other adaptive and coping capacities from structural and other non-structural measures through cost-benefit analysis. Multiple levels of analysis – household, community, local and national governments, need to be integrated in order to recognise the place-based and community-specific nature of social capital and adaptation. More research that highlights the detriment of social capital to adaptation is probably needed to balance out the tempting and seductive bias and over-emphasis on the positive aspects of social capital in adaptation. Whilst research shows how social capital facilitates collective action, offers information on trustworthiness, and connects community groups to external resources during crises and disasters. However, there is far less known about the relationship between adaptation behaviours and social capital around the choices that communities make in accommodating changing environmental conditions. Critical questions that warrant further investigation could include the following:

- Which combinations of social factors could make coping and adapting more likely?
- How can local networks influence and be integrated into policy interventions to improve climate change adaptation and strengthen local government structures and local farmers' clubs?

- What is the significance of the new land laws in securing tenure, livelihoods and adaptation to climate change?

9.3.2 Policy

In terms of policy, it is important for policymakers and NAPA to take an integrated perspective and consider how climate change interacts with other stressors in the system and thereby places further stress on already strained livelihoods. What is the implication of the country's new land laws that improve security of tenure for women and smallholder farmers and how it will enhance livelihoods? Population pressure is exacerbating land degradation on Malawi's limited land, mainly from agricultural expansion and the growing trend of farming on marginal land, resulting in less and less viable land being available, according to the country's National Climate Change Programme. At the same time, mutual social support between households effectively forms social insurances and creates obligations which can be claimed as and when needed. Such interplay of enforcing and creating social obligations could become a protective quality by itself. The weak local governance system and ineffective decentralisation which are impinging on farmers' collective actions of social support and resilience against climate change need urgent intervention to facilitate and better coordinate community development processes.

Previous studies on climate change in Malawi have underscored the need to build the skills and knowledge capacity of those most adversely affected by the impacts of climate change, particularly farming communities that rely heavily on natural resources. However, my study confirms the lack of clarity about which government department has the primary responsibility for doing this and driving climate change policy in Malawi. Action Aid (2012) and Chinsinga, Chasukwa and Naess (2012:3) also observed that policy processes around climate change in Malawi are subject to struggles for coordination and political leadership among key government actors as well as strong donor influence on actual strategies and the policy agenda. The institutional tensions fuel the perceptions that the policy process around climate change adaptation in Malawi is inherently political and top-down, favouring experts from government and international institutions.

On the basis of my study, I recommend that the Ministry of Environment, Water and Climate Change should take the primary lead in undertaking more coordinated and targeted public awareness and information programmes on climate change in the relevant languages in order to improve adaptation planning and coordination. This could be done with support from the Ministry of Housing and Local Government that can strengthen the decentralisation system and empower local government structures on the ground, the Ministries of Agriculture and Food Security, Economic Planning and Finance, NGOs, research institutions and funders. Issues of further research on community-based adaptation, LAPAs,

local beliefs and explanatory frameworks and understanding around climate change would be considered and factored in these institutional arrangements and research agenda.

Whilst the community-based approaches that NGOs and CBOs are using contribute to building capacity and creating awareness about climate change among farmers, they are not doing so in a cost-effective and coordinated way, due to competition amongst themselves. There is thus a need for more effective coordination among the different role players in Mphunga to avoid competition, duplication of activities and the ineffective use of resources. The entrenched culture of dependency on relief aid among farmers should be curtailed. A strengthened and complete governance decentralisation policy and its operationalisation could enhance the Salima District Assembly, as the most appropriate tier of local government in the district, to develop effective and resourced internal systems for monitoring NGO activities. It would promote climate change adaptation as part of community development across key livelihood support areas such as education, health, food security, disaster risk management and natural resource management. The District Assembly could also consider developing systems to monitor the appropriateness of technologies introduced to farmers by different role players. This would cover issues related to gender inclusivity and environmental sustainability as well as prevent the promotion of unapproved agricultural technologies that have negative implications for biodiversity or farmers' rights to seed ownership.

Private companies could play a more significant role by partnering with government and NGOs to offer government field extension officers better training and resources to improve their advisory services to farmers. An appropriate structure comprising officials from different government departments at Salima District Assembly, in liaison with the Village Development Committee, could play such a role. Ideally, this added responsibility should be given to an existing structure in order to avoid the proliferation of structures that may add to confusion and institutional dysfunctionality. The support of other community-based structures such as women's groups, CBOs, the Civil Protection Committee and the youth could play a more supportive role if they were enrolled as active partners instead of being passive recipients of their own development.

At a policy level, farmers could be mobilised to lobby and initiate community-based adaptation processes by developing Local Adaptation Programmes of Action (LAPAs) that will enable them to play a more significant role in the climate change processes. This is an area where experts from NGOs and government departments in Mphunga Group Village could promote the development of local and autonomous adaptation strategies by farmers and support them to push for their adoption as official policy. If sustainable empowerment and community development work is integrated with climate change adaptation processes, policy would be developed on the strengths of local practice and address priority issues affecting farmers. From a sustainable livelihoods perspective, the policy and

programmatic work of NGOs and government departments should cut across conventional boundaries and engage with the significance of rural-urban linkages in household livelihoods strategies. For example, according to Chinsinga *et al.*, (2012) the farm input subsidy scheme on maize seeds and fertilisers offered by the Malawian government has proved to be an ineffective strategy to improve smallholder farmers' livelihoods. For some farmers off-farm diversification strategies and migration are better livelihood options in the face of extreme weather events that need recognition and support.

The relevant government ministries could introduce appropriate policies to support such programmes through the proposed community technical colleges that can offer on-going courses on climate change to farmers, members of the Civil Protection Committee and the community-based flood early warning system, multipliers and extension officers. Agricultural training institutions could also offer compulsory courses in climate change to help equip practitioners with relevant knowledge and skills to support farmers in the adoption of climate-smart agriculture techniques such as mulching and pit-planting. Such techniques could potentially improve the balance of soil moisture by reducing run-off and moisture evaporation and benefit yield production during winter farming. Addressing the effects of climate change should take into account farmers' local knowledge hence the external adaptation (and mitigation) measures from experts must be appropriate for local realities.

In the face of increasingly difficult conditions, education is an important investment in human capital that can offer routes out of poverty for youth, especially given the challenges to productive farming under current climatic conditions and Mphunga's settlement history. To this extent, human capital development (through education and training) is an important aspect for farmers' survival. Therefore, the core of future interventions and support by NGOs and government agencies should focus on educational support for the community of Mphunga in the long term. This form of investment should target both youth and elderly farmers to build on local knowledge, explore the explanatory frameworks and belief systems around climate change. Adult literacy clubs like Chitsinzo and Chinyama in Mphnga would play a role in this regard.

Whilst the body of knowledge and understanding of climate change and livelihoods may be growing, my study highlights that what is not sufficiently recognised and acknowledged by policy-makers is the role of social capital and social networks in influencing the livelihood choices and adaptive capacity of communities. In this process, social capital and social networks offer significant informal safety nets that are helping farmers cope with shocks, ensure their survival during periods of extreme insecurity and access other resources. Farmers' bonds of solidarity are strengthened by the common challenges they face, which are driving them to fall back on informal social networks in the face of extreme weather events. A multi-disciplinary approach is needed to deepen our understanding of these dynamics from multiple points of view. Social capital is, therefore, an important livelihood resource in farmers'

responses to the negative effects of climate change. However, the exposure to adverse weather is not a new phenomenon, but the events are more intense and frequent thus it is important to shore up local capacity to respond.

9.4 Conclusion

According to the IPCC, the evidence for global warming as a result of anthropogenic causes is unequivocal. Yet while the scientific evidence for climate change appears largely settled, the consequences of climate change for human livelihoods and well-being are still disputed. Resource-poor smallholder farmers in Malawi remain particularly vulnerable to climate change, which is affecting food and livelihood security and inevitably deepening poverty.

Despite the worsening livelihood challenges and growing poverty, farmers are exploring local strategies and developing social networks in a bid to survive the adverse impacts of climate change. Whilst outside assistance goes a long way to help them, they are also using local agency to provide for other needs, finance migration out of Salima District and to interpret and adapt to the changes affecting them. The difference in life-history trajectories of the profiled farmers demonstrates their ability to marshal different forms of capital, use of personal skills and networks and crafty competence to react effectively and identify opportunities and engage in multiple livelihood strategies beyond farming. Janet's story is revealing in that being a woman is not always an obstacle to success in a patriarchal society like Mphunga despite the gender norms that generally marginalise women. However, despite the growing vulnerability in the face of extreme weather events, farmers are demonstrating a degree of resilience under extremely difficult economic conditions. With the new land laws of 2016 that have legally improved tenure security and empowered women, farmers could have better prospects of securing their livelihoods and investing in adaptation to climate change.

My study has examined how farmers, as actors, are struggling to come to terms with climate change. It has shown that they are trying to adapt but their adaptive resilience is being undermined by a host of factors. The role of experts is significant as is social capital at exploring the breadth of existing work. However, social capital and climate adaptation are still conceptually slippery and remain difficult to measure in policy and academic arenas. Future work could focus more on integrating theory and practice of social capital and adaptation to climate change, and develop evaluative frameworks and systematic evidence.

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Appendices

Appendix 1: Fieldwork schedule

Date	Activities Undertaken
12 January 2012	I attended a District Executive Council meeting where 2 NGOs (CURE and World Vision) made presentations on new climate resilience community projects planned for Mphunga village.
24-26 November 2012	I made a 2-day field visit to Mphunga village with my research assistants, to observe the landscape, general environment & farmers' land preparation activities just before the summer rains; used the opportunity for community consultations mapping & transect walk to further familiarise myself with the site and see the old village settlement site of Mphunga group village.
7-9 December 2012	I undertook a field visit with a research assistant to meet with Mphunga farmers and formally introduce my research through the village leadership. I took photos of the farmers and their old housing structures at their former settlement site, before the floods of 2009/10. The idea of a Core Reference Group to facilitate my study and ensure equal voice and representation from all the 13 villages of Mphunga was proposed to me by the Group Village Head. I trained my research assistants on the study research methods.
22 December 2012	I made a follow-up visit and introduced a new research assistant (JK) to the community; held meetings with different sections of the community and got to meet the Mphunga village-based extensionist (HJ) with whom I maintained regular contact thereafter.
7 January 2013	Following heavy floods the previous night, I travelled to Mphunga village to assess flood impacts with some members of the Salima District Civil Protection Committee; I met with the Group Village Headman and the Village's Civil Protection Committee for debriefing on the floods.
9 January 2013	I returned to the site following incessant rains and observed the disastrous effects of the floods which I captured on camera and in a report.
23-27 January 2013	I made a follow-up visit with the one research assistant to address gaps arising out of the issues that were captured in the research assistant's notes from our earlier visit of 22 December 2012 to witness some floods. I trained my research assistants in preparation for the field work.
6 February 2013	I attended a District Civil Protection Committee (DCPC) meeting where a researcher from Kamuzu College of Nursing presented her community health project study based in a neighbouring village; at the meeting, I met with a traditional leader who arranged for my accommodation in the neighbouring village of Kandulu, from April-June 2013.
March 2013	I made several trips to Mphunga Group Village during floods and sometimes stayed over for a couple of days to monitor the situation and rescue operations. I finalized my field lodging arrangements and also established the Core Reference Group during this time. Key respondents for each of the wealth groups and individual villages were identified and agreed by the village representatives who comprised the Group discussions in Mphunga Group Village.

April-June, 2013	<p>Lived in Kandulu Group Village with my two research assistants during which period we;</p> <ul style="list-style-type: none"> • undertook Core Reference Group Discussions to inform the village mapping, transect walks and form the wealth groups • undertook the wealth ranking exercise and the household survey were undertaken during this period. • PAR exercises <p>We also held interviews with key informants from different local NGOs, government departments and the Salima District Assembly.</p>
July-August 2013	<p>I made 4 follow-up trips to Mphunga Group Village and held meetings with some farmers and Village Heads to clarify some issues arising from the earlier field work. I stayed over for a couple of days on each occasion, to monitor the winter crops and fill in some data gaps. I interviewed some of the outstanding key respondents</p>
October 2013	<p>I also followed up on some interview leads with key respondent contacts at a local NGO working on climate change policy and met with the Department of Climate Change's officials to collect some meteorological data sets and do interviews in Blantyre.</p>
October-December 2013	<p>On-going email and telephonic contacts with officials from COOPI and the Salima District Assembly as well as the village-based extensionist (Harry) to learn about new developments in Mphunga Group Village.</p>
12-17 April 2016	<p>I made a follow up visit to Salima District Assembly, COOPI, Mphunga Group Village</p>
19-20 November 2017	<p>I visited Mphunga Group Village whilst on a different mission to Malawi</p>

Appendix 2: Core Reference Group members

CRG no.	Age	Gender	Marital status	Household size	Highest education level	Literacy
Mphunga Village (Formal)						
CGR 1	55	Male	Married	4	Standard 5	Can read & write
CGR 2	50	Female	Divorced	4	Standard 3	Can't read & write
CGR 3	44	Female	Married	7	Form 2	Can read & write
CGR 4	61	Male	Married	5	Never attended	Can't read & write
Kambudzi Village (Formal)						
CGR 5	35	Male	Married	5	Standard 2	Can read & write
CGR 6	38	Female	Married	10	Never attended	Can't read & write
CGR 7	55	Male	Married	8	Standard 8	Can read & write
CGR 8	63	Female	Divorced	5	Never attended	Can't read & write
M'nima Village (Informal then)						
CGR 9	32	Female	Married	4	Never attended	Can't read & write
CGR 10	28	Male	Married	2	Standard 7	Can read & write
CGR 11	28	Female	Married	3	Standard 8	Can read & write
CGR 12	29	Male	Married	4	Standard 8	Can read & write
Karonga Village (Formal)						
CGR 13	30	Female	Married	7	Never attended	Can't read & write
CGR 14	30	Female	Married	4	Standard 1	Can't read & write
CGR 15	30	Female	Widowed	4	Never attended	Can't read & write
CGR 16	39	Male	Married	6	Standard 5	Can read & write
Chadza Village (Informal then)						
CGR 17	27	Female	Divorced	4	Standard 6	Can read & write
CGR 18	61	Female	Married	7	Standard 8	Can read & write
CGR 19	60	Male	Married	3	Standard 7	Can read & write
CGR 20	31	Male	Married	4	Standard 2	Can read & write
Chimphonde Village (Informal then)						
CGR 21	32	Male	Married	3	Standard 5	Can read & write
CGR 22	28	Male	Married	3	Standard 7	Can read & write
CGR 23	27	Female	Married	5	Never attended	Can't read & write
CGR 24	22	Male	Married	4	Never attended	Can't read & write
Kachala Village (Informal then)						
CGR 25	30	Female	Married	5	Never attended	Can't read & write
CGR 26	35	Female	Married	5	Never attended	Can't read & write
CGR 27	25	Female	Married	4	Never attended	Can't read & write
CGR 28	26	Male	Married	3	Form 2	Can read & write
Chinyama Village (Formal)						
CGR 29	52	Male	Married	8	Standard 3	Can read & write
CGR 30	37	Female	Married	6	Adult School	Can't read & write
CGR 31	48	Male	Married	9	Standard 3	Can read & write
CGR 32	37	Female	Divorced	8	Adult School	Can't read & write
Chikumba Village (Formal)						

CGR 33	49	Male	Married	5	Form 2	Can read & write
CGR 34	26	Female	Married	6	Standard 6	Can read & write
CGR 35	46	Male	Married	8	Never attended	Can't read & write
CGR 36	45	Male	Married	7	Standard 6	Can read & write
Mabwera Village (Formal)						
CGR 37	65	Male	Married	4	Standard 7	Can read & write
CGR 38	23	Male	Married	5	Standard 3	Can't read & write
CGR 39	27	Male	Married	5	Form 4	Can read & write
CGR 40	42	Male	Polygamist	10	Form 2	Can read & write
CGR 41	38	Female	Married	9	Standard 2	Can't read & write
Mkwinda Village (Informal then)						
CGR 42	82	Male	Married	6	Never attended	Can't read & write
CGR 43	38	Male	Married	7	Standard 7	Can read & write
CGR 44	50	Male	Married	7	Standard 8	Can read & write
CGR 45	30	Female	Married	9	Never attended	Can't read & write
CGR 46	49	Female	Married	10	Never attended	Can't read & write
CGR 47	82	Male	Married	6	Never attended	Can read & write
Kapanda Village (Informal then)						
CGR 48	55	Male	Married	8	Standard 4	Can read & write
CGR 49	50	Female	Married	7	Never attended	Can't read & write
CGR 50	45	Female	Married	7	Standard 4	Can read & write
CGR 51	40	Female	Widowed	7	Never attended	Can't read & write
CGR 52	37	Female	Married	3	Standard 4	Can read & write
Kasiya Village (Informal then)						
CGR 53	24	Male	Married	4	Standard 8	Can read & write
CGR 54	22	Female	Married	4	Standard 8	Can read & write
CGR 55	28	Female	Divorced	6	Standard 6	Can read & write
CGR 56	30	Male	Married	4	Never attended	Can't read & write

Appendix 3: Life-history profiles schedule

(Source: Life-histories interviews, 2013)

Alima: a poor female in her late 20s

- Yao, Muslim, farmer and married with two children, and abandoned by her husband when he migrated to South Africa. Standard 6 when she fell pregnant. Initially better-off, but became poor after being abandoned and losing her property
- Went back to school after giving birth after being encouraged by her friends, but dropped out due to mocking by older women who teased her for seducing school teachers
- An earlier victim of forced marriage before she met her husband
- Her family relocated in the course of 2008 following the 2007/2008 floods
- However, she lost access to her husband's portion of the land (2 acres), cattle and household property after it was grabbed by her in-laws
- She currently farms on 1.2 acres of land, owns a goat and 2 ducks and a mobile phone
- Grows maize, rice, beans, sweet potatoes, pumpkins and okra using bucket irrigation in winter and rains in summer
- She was running her own small business until her equipment was stolen, making life extremely difficult for her as she often lacks basic household needs
- She now relies on her sister, friends and neighbours for support with food, loan and other needs and undertakes *ganyu* at least twice a month to generate income and food
- She is a member of ChiTwo-Two club, Chinzake club, the village's Women's Burial club, Eninyumba and Takumana informal clubs.

Asefu: a better-off male in his mid-40s

- Yao, Muslim, farmer and polygamist with 2 wives and 6 children; Junior Secondary Certificate; regarded as better-off
- He comes from a family with a long history of polygamy
- Migrated to South Africa in 2006, but could not go back there due to lack of money. He spent his return fare on repairing his house and treating his mother
- He plans to return to South Africa to work and save money to buy cattle so he can give his family a better life (bigger house, a business, cattle and solar power)
- He relocated from the old Mphunga settlement site in 2010 after the 2009/2010 floods
- Owns 2.5 acres of land and grows rice, beans, maize, sweet potato, groundnuts, cassava and cabbage, and rents in 3 acres from Lifidzi Group Village where he grows sugar cane and turnips. He can afford to hire irrigation equipment for his winter crop most of times
- Also owns 6 goats, 12 ducks, a bicycle and a mobile phone and does piece jobs for income
- Chair of the Mphunga Village Development Committee, a Secretary for Mabwera Village and member of Mphunga Rice Farmers' Group and is a member of his village's Men's Burial club
- He relies on his friends and close family members for support with personal problems, money, food and *ganyu*. He is a cousin to Henry and they are quite close so he often approaches him for *ganyu* at preferential rates, for food and money and to share personal issues.

Chief: a better-off male in his mid-70s

- Chewa; follower of *Gule waMkulu*, farmer and a polygamist with 2 wives and no children; Junior Secondary Certificate, and regarded as better-off
- Migrated to South Africa after the 1948/9 famine and worked there as a messenger for 22 years, and returned to Malawi in the late 1970s and worked as a carpenter and also became a Village Head
- He is a reservoir for local indigenous knowledge on weather-related issues
- Owns 15 acres of land and grows maize, rice, beans, sweet potatoes and cassava in both winter and summer seasons, and he uses irrigation
- He was one of the last households to relocate following the 2010/2011 floods
- Owns a mobile phone, bicycle, 3 goats and 8 ducks
- He heads the local policing committee that monitors illegal crop sales
- He is also a Village Head and a Clan Head for his extended family, a member of the Mphunga Group Village Court and a member of his village's Men's Burial club
- He relies on his friends, wives, traditional spiritual leaders, other Village Heads and close family members for financial social and moral support on personal and other issues.
- Although life is increasingly difficult, the chief receives a monthly allowance from the government for his role as a Village Head, disposes his assets to meet urgent needs and his wives undertake *ganyu* for immediate household needs

Harry: a better-off male in his early 30s

- Chewa, Christian, farmer and married to one wife with four children
- He went to school to Form 4, but did not pass
- Owns and tills 2.5 acres of land inherited from his maternal uncles, and relies on his family's labour to grow maize, rice, beans and cassava for own consumption and sale; he mixes maize, cassava and rice crops to counter against floods and drought - an adaptation technique he learned from the local agricultural extension officer in 2011
- He occasionally hires irrigation equipment when he can afford it
- Relocated to his current home site in 2008 following the 2007/2008 floods
- He is a Lead Farmer or Multiplier for Land O' Lakes and the Malawi Department of Agricultural Extension Services from whom he receives an occasional stipend or farm inputs
- Holds positions with the Village Civil Protection Committee, the Village Development Committee, Mphunga Village Agricultural Committee, the Mkhura Living Waters church and Manthimba CBO; member of the Mphunga Rice Farmers' Group and local Men's Burial club
- Among his assets are a mobile phone, two bicycles and a goat
- Harry's family now engages in local *ganyu* more regularly than before, at least 16 times per year, depending on their need for cash and or food, and especially during difficult times of the year (often from November-April) to support his family
- Due to the ensuing livelihood challenges, he relies on friends, neighbours, his mother and in-laws and fellow club/association members for help with food, inputs, money, moral support

Henry: a rich male in his early 50s

- Yao; Muslim, a polygamist with two wives and 12 children
- Went to school to standard 3; does not speak any English
- Farmer and businessman; owns a grocery store and grinding mill business

- Moved from the old Mphunga site in 2003, before the floods, in order to settle at Kandulu Trading Post near his grocery shop and grinding mill business but maintained a second house and fields in Mphunga that were destroyed by the 2010/2011 floods
- Owns 10 acres of land, rents an additional 8 acres across different villages and pays with food or money advances; grows rice, maize, beans; during the 2011/2012 farming season he harvested 196 bags of maize, 41 bags of rice and 32 bags of beans; has his own irrigation equipment; buys local produce from fellow farmers for resale at a profit
- Owns 24 head of cattle, five goats, a scotch cart (a highly prized farming asset), grinding mill and a mobile phone,
- A money and grain lender and regular source of *ganyu* locally, approached by between 6 and 20 community members daily, especially between October and April; in 2012, he lent out about MK700,000 (US\$2,100) to different borrowers who bring along a guarantor
- Often prefers to be paid back with produce or land rental instead of money due to the hyper-inflation environment obtaining in Malawi then
- Does not borrow money from individuals, but approaches financial institutions if needs credit; last borrowed money from the Rural Finance Company in 2006 to grow his business
- Relies on close personal friends, family members and spiritual leaders for help and advice on family and personal issues, moral support and spiritual guidance and protection.
- Attends local funerals and visits the sick whenever he has time, in order to maintain his relationships with the community and in keeping with his Islamic religious beliefs
- Protects his businesses against witchcraft using Islamic practices and beliefs

Janet: a better-off female in her mid-40s

- Chewa, Christian, married (monogamous), with seven children and three grandchildren;
- Completed Junior Secondary (Form 2) in Zimbabwe, and plans to study further
- Owns 4 acres of land and a wetland garden
- Undertakes *ganyu* occasionally to meet particular household needs, but not since 2011 at the time of my fieldwork due to lack of time); does some paid work for COWFA, SAWEG, Action Aid, Ndindi Resource Centre and Manthimba CBO
- Janet's family relocated to its current location in 2009 following the 2008/2009 floods that destroyed her family's house; had maintained a temporary summer-season house as a second home in Kandulu village since 2007
- Highly regarded as a community champion and well respected
- Holds multiple positions: Food Security Field Officer for SAWEG; Civic-Based Educator for the Centre for Human Rights and Rehabilitation (CHRR) and the Catholic Commission for Justice and Peace (CCJP); a Management Committee Member at Ndindi Women's Resource Centre and the Coalition for Women Farmers (COWFA); Treasurer for Manthimba CBO; Chairlady of the Safe Motherhood Local Chapter; Facilitator at Chinyama Adult Literacy Reflection Circle and Savings club; member of Mphunga Rice Farmers' Group, HIV/AIDS Support Group, Takondwera Savings club, Mphunga Village Rights Committee, Anglican Church and a volunteer at Mphunga Child Care Centre (since 1996)
- Also member ChiTwo-Two club, Anthukama farmers' club, Kamthungama and Tadziwana beans and maize growers club as well as and her immediate village's Women's Burial club
- Travels frequently in her various positions; travelled outside of Malawi to attend an International Conference on Climate Change in Durban in 2011 with Action Aid

- During her frequent travels relies on her family and wider support network to look after her children and take care of her garden; in return she buys them gifts from her trips, allows neighbours to use her mobile phones, offers moral support and advice on different issues
- Shares personal problems with one sister, closest friends, mother and in-laws depending on the nature of the problems
- She owns two mobile phones.

Margret: a poor female in her early 50s

- Tonga; Christian; farmer and widow with seven children, Junior Secondary Certificate (Form 2), and a certificate in Community Development, and regards herself as a poor
- A retired Community Development Worker who worked in Salima District where she decided to retire following the death of her husband in 2006
- Owns 1.6 acres of land and grows maize and groundnuts for own consumption. However, the soil has lost its natural fertility and she has to invest fertiliser to produce anything
- Also leases wetland gardens in Mphunga Group Village since 2003 and in nearby Pemba Traditional Authority where she grows beans and vegetables mainly for sale
- She runs an unprofitable knitting and corseting small business
- After the death of her husband, she sold her house and property (radio, goats, wall clocks, food stocks etc.) to support herself and her children, and owns a mobile phone
- She is struggling to pay school fees for two of her children and relies on her in-laws for support in this regard, and does paid piece work for CBOs and NGOs
- Margret also relies on her friends from Mphunga for food, accommodation and looking after her wetland garden, and family members elsewhere for other forms of support
- She would like to start a second-hand clothing business if she could raise the starting capital, and undertakes *ganyu* regularly to generate income in both Pemba and Mphunga
- She is not a member of the local clubs and CBOs found in Mphunga even though she supports them by teaching and sharing her professional skills (sewing, knitting, child care, cooking, home improvement and health and sanitation) with the women's clubs when requested

Professor: a male in his late 70s

- Chewa, a “Bishop” of *Gule waMkulu*; married with nine children and six grandchildren; never went to school, and he is regarded as better-off
- Owns 5 acres of land and two wetland gardens, a bicycle, cattle and ducks
- His family finally relocated to their current home site in 2010 after a series of floods
- He is the Chairman of *Gule waMkulu* and is highly respected due to this role, his organising skills which earned him the title “Professor.” A Chewa cultural expert, he presides over *Gule waMkulu* events across the districts of Salima and Dedza and often leads delegations of *Gule waMkulu* dancers to prominent, local, national and international events such as the installation of Chewa Paramount and other Chiefs
- He reinforces discipline among the *Gule waMkulus*, designs the clothing costumes, preserves the secret-coded language used by *Gule waMkulu* practitioners and looks after the materials
- He is also involved in funeral rites of *Gule waMkulu* members and conducts memorial ceremonies of the deceased
- Often receives tokens of appreciation from people for his guidance on Chewa cultural matters

- He is also the Khanga Clan Head and presides over and tries family cases (the Group Village Head falls under this clan and accounts to the Clan Head)
- Worked in the then Rhodesian Railways Company during the 1950s
- Professor relies on selected family members (his children mainly), close friends, fellow Clan Heads and Village Heads as well as high-ranking Chewa Chiefs for advice and support. He undertakes *ganyu* despite his high rank, and now receives tokens of appreciation (food, gifts and money) for facilitating *Gule waMkulu* ceremonies and funerals for families to compensate for his time. Previously he did not 'get paid' in the form of tokens
- He is a member of his village's Men's Burial club, overseer of the local *Gule waMkhulu*, and an Advisor to local chief, Chief Ndindi.

Saison: a better-off male in his mid-40s

- Yao and Muslim, married to one wife with seven children
- Completed Grade 7
- Moved to Mphunga Group Village from Mangochi District in 1987
- Owns 7.5 acres of land for farming rice, beans, cassava, potatoes, maize and half an acre of a wetland garden on which he grows cabbages and tomatoes
- After maintaining two home sites since 2006 due to floods, Saison finally moved to his current location in 2009 following the 2008/2009 floods
- Depends entirely on his family's labour and can't afford to hire irrigation equipment for winter farming
- A Village Head since 2011
- Assets owned include a bicycle, a mobile phone, 2 goats, 4 chickens, 6 hoes and 2 pangas
- He is a small fish trader - buys fresh fish from Lake Malawi fishermen and sells it in Lilongwe at least twice a week
- Engages more in local *ganyu* than before (up to 25 times a year between December and April) together with his family. Their main source of *ganyu* work is Henry (the rich farmer) and also the neighbouring Pemba Traditional Authority, in order to get income and food
- Also depends on his siblings, friends, neighbours and in-laws for help during emergencies like illness and funerals
- He occasionally volunteers with a local NGO and receives free food and branded clothing
- He plans to travel to South Africa to look for work, save some money and buy materials to build a better house, furnish it and buy clothes for his family
- He is the Chair of his village's Men's Burial club, and Clan Head as well as a member of the Mphunga Group Village's Court.

Zeinub: a poor female in her early 30s

- Yao; Muslim and farmer; married with 3 children; daughter of a female Village Head
- Completed Grade 7
- Husband migrated to South Africa in 2010 and has not returned home; he calls once a month and but does not send money home; she struggles to look after their children
- Owns 1.5 acres of land and a wetland garden
- Grows rice, maize and beans in summer and pumpkins through pit-planting in winter, using family and pooled labour from fellow club members; can't afford to hire irrigation equipment for winter farming

- Now regarded as poor, but used to be better-off until 2012
- Founder member of Chinzake club (since 2005); between 2010 and 2012 she joined Takumana club, ChiTwo-Two club, Kabwerebwere club, Eninyumba club, her village's Women's Burial club, Chinyama Adult Literacy and Mphunga Rice Farmers' Group
- Relies on friends, club members, sister and mother for material and social support more than before; also undertakes *ganyu* monthly to meet food and income needs of her children
- Among the second last batch of Mphunga farmers relocated in 2009
- Owns a mobile phone

Appendix 4: Social capital assessment question set

(adapted from the UK framework for social capital measurement by Harper and Kelly, 2003)

Length of residence in Mphunga Group Village

Q1. How long have you lived in this area?

1. Less than 12 months
2. 12 months or more but less than 2 years
3. 2 years or more but less than 3 years
4. 3 years or more but less than 5 years
5. 5 years or more but less than 10 years
6. 10 years or more but less than 20 years
7. 20 years or longer
8. Don't know

Trust and Reciprocity

Q2. Generally speaking, would you say that most people around Mphunga can be trusted, or that you can't be too careful in dealing with people?

1. Most people can be trusted
2. Can't be too careful in dealing with people
3. It depends on people/circumstances
4. Don't know

Q3. For the following, please can you tell me how much you trust them?

1. Can you tell me how much you trust the police?
2. Can you tell me how much you trust the Traditional Court?
3. Can you tell me how much you trust the Malawian National Parliament?
4. Can you tell me how much you trust the Salima District Assembly?

[Show or read out the following responses....**NB:** not all farmers can read]

- a) A lot
- b) A fair amount
- c) Not very much
- d) Not at all
- e) No experience
- f) Don't know

Now I would like to ask you a few questions about your immediate neighbourhood, by which I mean your neighbourhood (neighbouring households and or villages next to you, but within the same group village or within Kandulu Group Village).

Q4. In general, what kind of neighbourhood would you say you live in - would you say it is a neighbourhood in which people do things together and try to help each other, or one in which people mostly go their own way?

1. Help each other
2. Go own way
3. Mixture
4. Don't know

Q5. To what extent do you agree or disagree that this neighbourhood is a place where people from different ethnic or religious backgrounds get on well together?

1. Definitely agree
2. Tend to agree
3. Tend to disagree
4. Definitely disagree
5. Don't know
6. Too few people in neighbourhood
7. All same backgrounds

Q6. Would you say that...

1. Most of the people in your neighbourhood can be trusted
2. Some can be trusted
3. A few can be trusted
4. Or that no-one can be trusted?
5. Just moved here
6. Don't know

Q7. Suppose you lost your purse/wallet containing your identity, and it was found by someone living in this neighbourhood, how likely is it that it would be returned to you with nothing missing?

1. Very likely
2. Quite likely
3. Not very likely
4. Not at all likely
5. Don't know

I am going to read out a list of problems which some people face in their neighbourhood. For each one, please can you tell me how much of a problem it is?

Q8. How much of a problem is there of people being rude, drunk or abusive in the village's public places?

Q9. How much of a problem is there of people being attacked or harassed because of their ethnic origin or religion?

Q10. How much of a problem is there of teenagers hanging around drinking spots e.g. at Kandulu trading post?

Q11. How much of a problem is there of troublesome neighbours (whether from Mphunga or not)?

1. Very big problem
2. Fairly big problem
3. Not a very big problem
4. Not a problem at all
5. It happens but it's not a problem
6. Don't know

Social and Civic Participation (in local issues)

To what extent do you agree or disagree with the following statements:

Q12. I can influence decisions affecting my group village?

Q13. By working together, people in my village can influence decisions that affect our group village

1. Strongly agree
2. Agree
3. Neither agree nor disagree
4. Disagree
5. Strongly disagree
6. Don't have an opinion
7. Don't know

Q14. In the last 12 months have you taken any of the following actions in an attempt to solve a problem affecting people from Mphunga Group Village? You can choose more than 1 response

1. Contacted the appropriate organisation to deal with the problem, such as the District Assembly
2. Contacted a local councillor or MP
3. Attended a public meeting (e.g. VDC, club or farmers' meeting) to discuss local issues
4. Helped organise a petition on a local issue
5. No local problems
6. None of the above
7. Don't know

Q15. In the last 12 months have you taken any of the following actions in an attempt to solve a problem affecting people in your local area?

1. Contacted a local community radio station or Malawi Broadcasting Corporation (MBC) TV
2. Contacted the appropriate organisation to deal with the problem, such as the District Assembly
3. Contacted a local councillor or MP
4. Attended a public meeting or neighbourhood forum to discuss local issues
5. Attended a protest meeting or joined an action group
6. Helped organise a petition on a local issue
7. No local problems
8. None of the above
9. Don't know

Unpaid help to groups (Social participation)

Q16. During the last 12 months have you given any unpaid help to any groups, clubs or organisations in any of the ways shown on this card?

1. Raising or handling money
2. Leading the group/ member of a committee
3. Organising or helping to run an activity or event
4. Visiting elderly or disabled people
5. Giving advice/ information/counselling
6. Providing transport/cycling

7. Representing or campaigning
8. Other practical help (e.g. helping at school, church, mosque or under 5years children's clinic)
9. None of the above
10. Don't know

Participation in national issues

Q17. In the last 12 months have you taken any of the following actions to show your concern over a national issue?

1. Contacted a local TV or radio station
2. Contacted the appropriate organisation (NGO, CBO etc.) to deal with the problem
3. Contacted an MP
4. Attended a village public meeting
5. Attended a protest meeting or joined an action group
6. Helped organise a petition
7. None of these
8. Don't know

Q18. Did you vote.....

1. in the last general election (national election)?
2. (Did you vote) ...in the last local District Assembly election?
3. Did not vote in either election
4. Not eligible to vote in either
5. Don't know

Social networks

The next few questions are about how often you personally contact your relatives, friends and neighbours.

Q19. Not counting the people, you live with, how often do you do any of the following?

1. Speak to relatives on the phone
 2. Write a letter or note to relatives
 3. Text or call relatives to talk to relatives
 4. Speak to friends on the phone
 5. Write a letter or note to friends
 6. Text or call friends to talk to friends
 7. Speak to neighbours
-
- a) On most days
 - b) Once or twice a week
 - c) Once or twice a month
 - d) Less often than once a month
 - e) Never
 - f) Don't know

Q20. How often do you meet up with relatives who are not living with you?

Q21. How often do you meet up with friends?

Social support

Q22. I am going to describe two situations where people might need help. For each one, could you tell me if there is anyone you could ask for help? (If more than one person in household add them up: Please include people living with you and people outside the household)

a. You are ill in bed and need help at home. Is there anyone you could ask for help?

Yes/no

b. You are in financial difficulty and need to borrow some money to see you through the next few days. Is there anyone you could you ask for help?

Yes/no (Money)

c. If Money = Yes then, please tell me who you could ask for help?

1. Husband/wife
2. Other household member
3. Relative (outside household)
4. Friend
5. Neighbour
6. Voluntary or other organisation
7. Other
8. Would prefer not to ask for help
9. Don't know

Q23. If you had a serious personal crisis, how many people, if any, do you feel you could turn to for comfort and support?

Involvement in groups, clubs and organisations

The next questions are about involvement in groups, clubs and organisations. These could be formally organised groups or just groups of people who get together to do an activity or talk about things. (*Please exclude just paying a subscription, giving money and anything that was a requirement for your role, group, organisation and club.*) I am going to ask about 3 different types of groups:

Q24. First, in the last 12 months, have you been involved with any groups of people who get together to do an activity or to talk about things? These could include farmers' groups, loan and savings club, labour pool group for *ganyu* and so on.

Yes/no

If yes then:

Q25. Please indicate the groups you have taken part in...

1. Farmers' group
2. Funeral club
3. Local community or neighbourhood groups
4. Groups for young people
5. Adult education groups
6. Groups for older people
7. Civil Protection Committee
8. Health, disability and welfare groups
9. Political groups
10. Religious groups, including going to a place of worship or belonging to a religious based group
11. Other group

12. None of these

13. Don't know

Q26. Second, in the last 12 months, have you taken part in any (other) group activities as part of a local or community group, club or organisation? These could include village development committee, women's group, village health, school or religious groups and so on. Which of the categories best describe the groups you have taken part in?

Q27. In the last 12 months, have you taken part in any (other) group activities as part of a national group, club or organisation? These could include religious, cultural, flood early warning groups, political groups, civil protection committee groups and so on. Which of the categories best describe the groups you have taken part in?

Unpaid help to groups and individuals

Q28. During the last 12 months have you given any unpaid help to any groups, clubs or organisations among the following?

1. Raising or handling money
2. Leading the group/member of a committee
3. Organising or helping to run an activity or event
4. Visiting people
5. Befriending people
6. Giving advice/information/counselling
7. Representing
8. Campaigning
9. Other practical help (e.g. helping out at school or religious group)
10. Any other help
11. None of the above
12. Don't know

Q29. Thinking about the unpaid help you have mentioned, would you say you give this kind of help...
(Code the first that applies)

1. At least once a week
2. At least once a month
3. At least once every three months
4. Or less often?
5. Other
6. Don't know

Q30. Some people have extra responsibilities because they look after someone who has long-term physical or mental ill health or disability, or problems due to old age. About how many times in the last 12 months have you given unpaid help through a group, club or organisation?

Q31. May I check, is there anyone living with you who is sick, disabled or elderly whom you look after or give special help to, other than in a professional capacity. (For example, a sick or disabled (or elderly) relative/husband/wife/child/friend/parent etc.)

1. Yes
2. No

Q32. Now I would like to talk about any unpaid help you may have given people who do not live with you. In the past month, have you given any unpaid help in any of the ways shown on the card? Please do not count any help you gave through a group, club or organisation.

1. Domestic work, home maintenance or gardening
2. Running errands
3. Help with childcare or babysitting
4. Teaching or giving practical advice
5. Giving emotional support
6. Other
7. Don't know

Now I would like to talk about any unpaid help you may have received.

Q33. In the past month, have you received any unpaid help in any of the ways shown on the card? (*Please don't count help from people who live with you or from an organisation or group*).

1. Domestic work, home maintenance or gardening
2. Running errands
3. Help with childcare or babysitting
4. Teaching, coaching or giving practical advice
5. Giving emotional support
6. Other
7. Don't know

Contacts with friends, relatives and neighbours (social networks and support)

The next questions are about how often you personally contact relatives, friends and neighbours.

Q34. How often do you...

- a. Speak to relatives on the phone
- b. Speak to friends on the phone
- c. And how often do you speak to neighbours (face-to-face)
- d. How often do you meet up with relatives who are not living with you?
- e. How often do you meet up with friends?
 1. On most days
 2. Once or twice a week
 3. Once or twice a month
 4. Less often than once a month
 5. Never
 6. Don't know

Appendix 5: Markers of social status in Mphunga Group Village

Marker	Gendered dimensions: with whom is the marker most strongly associated	Comment
Ownership of solar equipment & lighting	Both men and women	
Owning a radio or wireless	Men	
Owning a bicycle	Men	A bicycle with gears or a mountain bike has more social status than regular ones
A television set	Men	
A brick house with roof made of zinc sheets	Both	
Having been to South Africa (SA) & back, or having a relative in SA	Men	
A professional job	Both	
Ownership of an oxcart	Men	
Ownership of chairs & a table	Both	
Ownership of cattle	Men	
Owning small livestock such as ducks, chickens, rabbits	Women	
Goats	Both	
Cellphone ownership	Both	
Owning a bed & mattress	Both	
Being married carries status, and for men a polygamist has higher status than non-polygamists	Both	
Having children	Both	Children who are educated and working carries even higher status
Land ownership: 4 acres plus	Both	Land ownership that includes a <i>dimba</i> /wetland for gardening or winter cropping is highly regarded
Ownership of an engine water pump or treadle pump	Men	A treadle pump is less highly regarded than one with an engine
Ownership of a generator	Men	
Owning expensive clothing produced outside of Malawi, eg with South African or American labels.	Both	
Savings of MK40000.00 or so	Both	Ability to employ <i>ganyu</i> workers
Ownership of imported branded clothing items e.g. a wrapper	Women	An imported one from SA, Swaziland and Botswana carry

		more social status than local ones from church or political party
A higher level of education than the local norm, e.g. Form 4, Standard 5 or above	Both	
Holding a position in local organisation/office	Both	
Operating a business: small trade, fish, grocery shop, grinding mill	Men	
Ability to speak and understand English	Both	Men tend to have a higher literacy level than women
Farming skills	Both	
Higher farm yields & eating 3 meals per day	Both	Both men and women tend to be proud of this status

Appendix 6: Structured household-survey questionnaire

Section A: Identification Information

- A1. Name of the interviewer _____
- A2. Name of the respondent _____
- A3. Name of the household head _____
- A4. Name of the village _____
- A5. Ethnicity of the respondent: 1= Yao, 2= Chewa, 3= Other...
- A6. Religion of the respondent: 1=Christian, 2=Muslim, 3=*Gule waMkulu*, 4= Other...
- A7. Denomination, if Christian: 1=Catholic, 2=CCAP, 3=Adventist, 4=African Abraham, 5=Pentecost, 6= Others
- A8: Category of the farmer/respondent: 1=Very poor, 2=Poor, 3= Better off

Section B: Socio-economic and Demographic Characteristics of the Farmer/Respondent

- B1. Gender of the respondent: 1=Male, 2=Female, 3= Other
- B2. Age of the respondent (in years) _____
- B3. Age of the household head (in years) _____
- B4. Education level of the respondent (highest class attained) _____
- B5. Marital status: 1=Married in Monogamy, 2=Married in Polygamy, 3=Unmarried, 4=Divorced, 5=Widow/Widower
- B6. Number of spouses (if polygamous) _____
- B7. Household size: Males _____ Females _____ Other _____
- B8. Housing materials: 1=Permanent (Baked/burnt bricks, cement floor, glass windows, tinned roof, wooden door), 2=Temporary (unbaked bricks, compacted mud floor, thatched grass, reeds etc.), 3=Makeshift (Reed, mud & pole wall, compacted mud floor, reed door & window, other)
- B9. Total land owned (grazing + food & cash crops in acres) _____
- B10. Total land cultivated in 2012/13 growing season (in acres) (owned +/- rented land) _____
- B11. Land allocated to food crops in 2012/13 growing season (in acres) _____
- B12. Land allocated to cash crops in 2012/13 growing season (in acres) _____
- B13. Main crops grown for sale (*you can tick more than one*): 1=Rice, 2=Beans, 3=*Thekere lobala*/Okra, 4=Cassava, 5=Sweet potatoes
- B14. Main food crops (*you can tick more than one*): 1= Maize, 2=Rice, 3= Cassava, 4=Sweet potatoes
- B15. Main sources of cash income, ranked in order of importance (*you can tick more than one*):
 1=Crop sales, 2=Livestock sales, 3=Fishing, 4=Salaried employment, 5=Remittances, 6= Small business, 7=Transport (bicycle/car taxi), 8=Trade (large scale), 9=Agricultural labour, 10=Casual labour, 11=Beer brewing, 12=Petty trading/Small scale, 13=Firewood/Charcoal sale, 14=Vegetable/Produce sales, 15=Livestock products sale, 16=Others

B16. Months of consumption from own harvest _____

B17. Highest schooling levels attained by children _____

B18. Main sources of development information, ideas and skills (individuals or organisation, farming, market prices, political, gossip etc.

B19. In a bad year, what are your main response/copping strategies (to floods, drought & other disasters)?

B20. Adaptation strategies used;

B21. What are your community's main constraints and key development priorities?

B22. For how long have you resided at your current residence (to determine extent of local networks & ties):

Section C: Asset Ownership

Livestock ownership			Productive household assets			Other assets		
Livestock	1=Yes 2=No	No.	Asset	1=Yes 2=No	No.	Asset Owned	1=Yes 2=No	No.
Cattle			Ploughs			Cell phone		
Goats			Treadle pumps			Radio		
Sheep			Engine pumps			Television		
Pigs			Fishing equipment			Bicycle		
Chickens			Oxcart			Car		
Rabbits			Hoes					
Ducks			Sewing machine					
Others (specify)			Other...					

Appendix 7: Semi-structured interviews (for key informants)

Names	Position/s held	Organisation	Relationship with Community	Date of Interview
Mphunga Group Village/Community-Based Organisations				
Margret	Several	Mphunga Village Rights Committee (VRC)	Promotion of Human & Farmers' Rights	20 May 2013
Janet	Several	Mphunga Village Rights Committee Action Aid (Salima) Takondwera Chinyama Reflect Circle Mphunga Rice Farmers' Group Salima Women Action Group Two Two	Promote women's rights; facilitate Adult Literacy and promote household food security	23 May 2013
Asefu	ChiTwo-Two	Mphunga Village Development Committee (VDC) Mabwera Village	Coordinate community development planning	19 May 2013
Zeinub	Secretary	Mphunga Civil Protection Committee	Manage flood early warning system; coordinate evacuation and relief during floods and report to Salima District Assembly	21 May 2013
Harry	Several	Land O' Lakes & Government Agricultural Extension Mphunga Civil Protection Committee Mphunga VDC	Liaise with government and Land O' Lakes extensionists; provide farmers' with advice support	20 May 2013
Saison	Two Two	Chikumba Village World Food Program	Preside over village court and refer cases to the group village head	4 May 2013
Henry	Businessman	Chinyama Village	Provides community members with piece work/ <i>ganyu</i> and cash or grain loans	18 May 2013
Chief Mabwela	ChiTwo-Two	Mabwela Village	Preside over village court and refer cases	22 May 2013

		Mphunga Group Village	to the group village head	
Chief	Village Head	Chinyama Village	Preside over village court and refer cases to the group village head	12 May 2013
“Professor”	Several	Gule wa Mkulu	Presides over Gule wa Mkhulu cultural activities & ceremonies	22 May 2013
Mavis	Farmer	Mphunga Rice Farmers’ Group	Maintain minute records of the farmers’ group	21 May 2013
Mustapha	Farmer	Red Cross Photo Story	Village liaison contact for Red Cross Malawi projects	24 May 2013
Joabu	Farmer	Chitsanzo Adult Literacy Group Community-based Care Tiyamike Disability Club	Small businesses, teacher for community adult literacy, village savings and loans	11 May 2013
Zex	Farmer	Member of several women’s farmers and community support groups	Provide material and moral support on special occasions and when needed	27 May 2013
Alima	Farmer	Member of several women’s farmers and community support groups	Provide material and moral support on special occasions and when needed	20 May 2013
Group Village Headman Mphunga	Farmer and community leader	Member of several groups, including traditional leadership structures		22 December 2012
Chief Chadza	Farmer and community leader	Member of many clubs, a Clan and Village Head		14 May 2012
Non-Governmental and International Organisations				
Roster Kufandiko	Programme Officer	Red Cross Society	Livelihood and humanitarian support	7 June 2012
Duncan Ndhlovu	Program Officer: Disaster Risk Reduction	World Food Program	Funding for Cash for Work & Monitoring of Lifidzi River Stabilization Project	27 May 2013
Alepha Mlanga	Manager	Action Aid International (Salima Office)	Livelihood Diversification &	6 June 2013

			Resilience and Poverty Alleviation	
David Mthobwa	Crop Extensionist	Land O' Lakes (Salima NGO)	Crop & Livestock Diversification; Promotion of Farmers' Produce Markets	24 May 2013
Osley Chikasu	Food Security Field Officer	Cooperazione Internazionale (COOPI) (Salima NGO)	Promote food security and community resilience against flood disasters and risk reduction	23 May 2013
Ulemu Zaindi	Program Officer	COOPI/Disaster Risk Management Centre	Promote community resilience against flood disasters and risk reduction	12 June 2013
Moira Simpson	Program Manager	COOPI (Salima NGO)	Promote community resilience against flood disasters and risk reduction	23 May 2013
Fletcher Simwaka	District Coordinator	Centre for Human Rights & Rehabilitation (Salima Office)	Promotion of human rights and farmers' rights to fair prices	23 May 2013
Elizabeth Kaambankadzange	Coordinator	Salima Women's Action Group (SAWEG)	Promote women's rights and empowerment	5 June 2013
Government Departments				
Blessings Nkhoma	Director for Planning & Development	Salima District Assembly		23 rd May 2013
Mrs E.R. Munthali	Overseer of VDCs & ADCs in Traditional Authority Ndindi	Community Development Department, Salima District Assembly		5 th and 6 th June 2013
Lawrence Kipandura	District Officer	Department of Agriculture and Food Security		5 th June 2011 23 rd May 2013
JJ	Extension Officer	Department of Agricultural Extension Services (covering Mphunga)		16 th May 2013
Mr. Nkhata	Health Survey Assistant	Mchoka Hospital, Chipoka		18 th May 2013

Blessing Kamtema	District Disaster Risk Reduction & Management Officer	Department of Natural Disasters & Risk Reduction		16 th June 2013
Gertrude Chifomboti	Natural Disasters Registrar	Department of Disaster Management Affairs (DoDMA)		7 th July 2013
Adams Chavula	Principal Agricultural Meteorologist	Department of Climate Change and Meteorological Services, Blantyre Office		12 th October 2013
Getrude Kambauwa	Deputy Director	Department of Land Resource Conservation, Ministry of Agriculture & Food Security		11 th April 2013
Mutisungilire Kachulu		National Climate Change Programme, Ministry of Dvpt Planning & Cooperation		8 th July 2013
Academics				
Stanley Khaila	Sociology Lecturer	Bunda College of Agriculture, University of Malawi		9 th April 2013
David Mkwambisi	Lecturer	Bunda College of Agriculture, University of Malawi		10 th April 2013

Appendix 8: Semi-structured key-informant-interview questionnaire

Section A: General Livelihood Background Information

- A1. What is your relationship with the farmers, and for how long has this been going?
- A2. What are the most pressing livelihood issues for the local community?
- A3. What is important to know about the local people, their general environment and livelihoods?
- A4. What is being done, and by who, to address the pressing issues faced by the local community/farmers?
- A5. Where do farmers source their farming inputs from?
- A6. Who advises farmers on which crops and varieties to grow, and when in the year they should do so?
- A7. How do farmers decide when to plough, plant and what they plant from year to year?

Section B: Livelihood Analysis and Agricultural Markets

- B1. Who are the poor and where are they? What assets do they own? What activities are they engaged in?
- B2. What are the poor's livelihood priorities, aspirations and livelihood strategies?
- B3. What markets are important for the livelihoods of the poor? How well do these markets currently serve them in terms of ease of access, security of access and conditions of access?
- B4. What agricultural supply and value chains exist and how do they operate? Where are the constraints and where are high returns being made?

Section C: Policy and Sustainable Livelihoods Issues

- C1. Who makes policy for local communities?
- C2. What measures (structures, processes & resources) and procedures are in place to implement the policies?
- C3. Through what institutions and organisations are the implementation measures channeled?
- C4. In what form (or shape) do the above institutions and organisations exist at the local level?
- C5. What other local institutions or organisations affect local responses to policy?
- C6. What resources are poor people drawing on to influence policy outcomes? How effectively are they doing so?

C7. What structures and processes exist for poor people to directly and indirectly influence policy outcomes?

Section D: Governance Issues

D1. How actively and effectively are local communities involved in planning and managing their own development (e.g. access to inputs and basic services; fair prices and marketing of produce; village development action plans, village environmental action plans)?

D2. What suit of basic services are communities entitled to from the district assembly and government departments? What services are they actually receiving?

D3. Is there a responsive, active and accessible network of local service providers (community-based, private sector or government)? Who are they and how effective are they?

D4. How effective and responsive is the Salima District Assembly in providing community services and facilitation in a coordinated and accountable manner?

Section E: Climate Change Awareness

E1. What is your assessment of the farmers' understanding of climate change? How are they interpreting it? What is the evidence of climate change in their context?

E2. Where did you receive training on climate change issues? Do you feel sufficiently informed about it in your work with the farmers?

E3. What challenges do you encounter in building climate change awareness and addressing its impacts in your work?

E4. Apart from your organisation, who else interacts with the farmers and imparts useful knowledge in raising climate change awareness and build their capacity and understanding to respond effectively to climate change impacts?

E5. What are some of the impacts of climate change in Mphunga community?

E6. What adaptation strategies are farmers adopting and using in responding to climate change impacts?

E7. What informs these strategies? How effective are they? How do you determine their effectiveness?

E8. What are the existing social groups, networks, clubs/associations and organisations (formal and informal) that farmers belong to in Mphunga?

E9. What do the social networks help the farmers with, with respect to better understanding and effectively responding to climate change impacts?

E10. What other programs and initiatives (e.g. farm radio/TV programs, print media etc.) are helping the farmers to understand and deal with climate change issues effectively in Salima?

Appendix 9: Informed consent form



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STELLENBOSCH UNIVERSITY: CONSENT TO PARTICIPATE IN RESEARCH

Hello. My name is *Munyaradzi Saruchera*, a student from the Department of Sociology and Social Anthropology at Stellenbosch University, Cape Town, in South Africa. I hereby invite you to participate in a research study that will contribute to my PhD dissertation. The title of my research is “*Smallholder Farmers’ Understandings of and Responses Climate Change Adaptation in Malawi: A Case Study of Mphunga Village, Salima District.*”

I am asking you to participate in the above research study being conducted by me, with Joseph Kanyamuka and Maureen Nyamulola as my Research Assistants/Translators, and the results will contribute towards a thesis. You were selected as a possible participant in this study because you are a smallholder farmer resident in Mphunga Group Village, Salima District where the study is being undertaken and/or you are informed about the issues.

1. PURPOSE OF THE STUDY

The main aim of the research is to investigate how smallholder farmers are responding to climate change impacts and the related environmental changes in their community.

2. PROCEDURES

If you agree to participate in this study, I will ask you to answer some questions and tell me about your experiences and knowledge concerning the impacts of climate and related environmental changes in your community and/or more generally. I anticipate that our conversation will not take more than one hour.

3. POTENTIAL RISKS, DISCOMFORTS AND BENEFITS

As far as I know and can ascertain, there are no foreseeable risks to you in participating in the research. There are no direct benefits to you. However, I expect that my study will contribute to knowledge of smallholder farmers’ experiences in responding to climate change in Malawi: a bottom-up perspective, and that it may influence climate change adaptation policy in the country.

4. PARTICIPATION, WITHDRAWAL & PAYMENT

You will not be paid for participating in the study. Participation in the study is voluntary, which means that upon being asked to participate you can choose whether or not you want to participate in the study or give of your time. If you agree to participate, you may withdraw at any time you choose, without any negative consequences for you. You may also refuse to answer any questions that you do not want or feel comfortable to answer and still remain in the study.

5. CONFIDENTIALITY

You will not be specifically identified by your names as a participant in the study, and your identity will remain confidential, unless you specify otherwise. Any information that is obtained in connection with this study and that can be identified with you will remain confidential and will be disclosed only with your permission or as required by law. Your identity will be protected through the use of special codes and/or the use of pseudonyms, and your personal information will not be revealed to third parties.

The data that I will collect will be stored in a safe place and will only be accessible by myself and shared with my academic supervisor where needed.

If you are agreeable, I would like to record my interview with you on a voice recorder; should you agree, you may still ask for the recorder to be switched off at any time during the interview if you so wish. The recording tapes are intended for educational purposes in connection with this particular study only.

6. IDENTIFICATION OF INVESTIGATORS

If you have any questions or concerns about the research, please feel free to contact me on mobile: +26-606022377, email: Saruchera@yahoo.com or Mr. Blessing Nkhoma, the Director for Planning and Development at Salima District Assembly, on telephone: +265-999 944 173. You can also contact my academic supervisor, Professor Cheryl Walker at Stellenbosch University, Private Bag XI Matieland, 7602, South Africa; tel: +27-21-808 2420 or email cjwalker@sun.ac.za.

7. RIGHTS OF RESEARCH SUBJECTS

You are not waiving any legal claims, rights or remedies because of your participation in this research study. If you have questions regarding your rights as a research subject, contact Ms Maléne Fouché on email: mfouche@sun.ac.za or tel: +27-21 808 4622 at the University of Stellenbosch's Division for Research Development, Private Bag XI Matieland, 7602, South Africa..

I may publish the results of my study in an academic publication, and with regards to my dissertation, your identity will remain confidential in any such publication, unless expressly agreed otherwise.

ORAL CONSENT/SIGNATURE OF RESEARCH SUBJECT OR LEGAL REPRESENTATIVE
--

The information on page 1 was described to me by *Munyaradzi Saruchera* and/or Joseph Kanyamuka in Chichewa/English. I am in command of this language. I was given the opportunity to ask questions and these questions were answered to my satisfaction. I hereby consent voluntarily to participate in this study. I have been given a copy of this form.

Note any conditions (eg agreed to be identified): _____

Name of Subject/Participant

Name of Legal Representative (if applicable)

Signature of Subject/Participant or Legal Representative

Date

OR

Oral consent given and noted by the Researcher: _____

SIGNATURE OF RESEARCHER

I declare that I explained the information given in this document to _____ and/or his/her representative _____. He/she was encouraged and given ample time to ask me any questions. This conversation was conducted in Chichewa/English.

OR

I declare that I explained the information given in this document to _____ and/or his/her representative _____. He/she is illiterate and/or did not want to sign the form. He/she was encouraged and given ample time to ask me any questions. This conversation was conducted in Chichewa. At the end of the conversation the respondent agreed orally to participate voluntarily in the study.

Signature of Assistant (where applicable)

Signature of Researcher

Date

Appendix 10: Formal expert networks and organisations

Organisation	Role
<p>1. International NGOs:</p> <ul style="list-style-type: none"> • Action Aid • COOPI • Land O’ Lakes International Development • Red Cross Society • Tuesday Trust • IRAD • Feed the Children 	<p>Provide relief aid and farm inputs, implement community development initiatives aimed at diversifying the farmers’ livelihoods, develop their capacity to read and write take charge of their own development through a diverse range of activities. Some of the NGOs provide once-off assistance whilst others have engaged the Mphunga community on a medium to long-term basis; these NGOs tend to partner with the local government authority and create village-based structures to facilitate delivery of project activities. The Tuesday Trust channeled farm inputs to Mphunga women’s farming clubs that are affiliated to the Salima Women’s Network on Gender (SAWEG).</p>
<p>2. National NGOs:</p> <ul style="list-style-type: none"> • SAWEG • Umodzi Foundation • Centre for Human Rights and Rehabilitation (CHRR) • Centre for Environmental Policy & Advocacy (CEPA) • CUMO Microfinance 	<p>They provide relief aid and farm inputs, implement community development initiatives aimed at diversifying the farmers’ livelihoods, develop their capacity to read and write take charge of their own development through a diverse range of activities. Some of the NGOs provide once-off assistance whilst others engage the Mphunga community on a medium to long-term basis</p>
<p>3. Faith-Based Organisations:</p> <ul style="list-style-type: none"> • Nkhoma Synod CCAP • Africa Muslims Agency • Catholic Development Commission (CADECOM) • Catholic Commission for Justice & Peace (CCJP) • Assemblies of God Relief and Development Services • Islamic Social Development Fund 	<p>Founded on faith principles, they operate more or less like NGOs in providing either once-off or long-term relief, and community development activities infused with spiritual support. While support may be targeted at community members of the same faith, the focus is often on the poor, children, elderly and sickly across all faiths.</p>
<p>4. Political Parties:</p> <ul style="list-style-type: none"> • Malawi Congress Party • People’s Party • Democratic People’s Party • United Democratic Front 	<p>They provide the basis for political affiliation and identity and provide platforms through which some of the farmers’ access position, power and material benefits and dominate other farmers. According to the study respondents, members of the governing party tend to benefit most from state support</p>

	when relief aid, food for public work schemes and farm input starter packs are distributed by political parties
<p>5. Community-Based Organisations (CBOs):</p> <ul style="list-style-type: none"> • Ndichola CBO • Manthimba CBO • River Alliance Committee 	Formed by some of the international NGOs, these CBOs can be seen as village-based extensions of the founding NGO, aimed at circumventing corrupt traditional leaders and weak and ineffective village development committees. Thus the Ndichola CBO was formed by Action Aid as an overseer of community structures tasked with promoting safe childhood development, education, irrigation farming etc., while COOPI formed the River Alliance Committee
<p>6. International Agencies:</p> <ul style="list-style-type: none"> • UNICEF • UNDP • World Food Program 	They work in partnership with the Salima District Assembly and some of the NGOs active in Mphunga Group Village to provide development project funding or relief aid. Thus the 2012 Lifidzi Riverbank Stabilization project funded by the World Food Program was channeled through the Salima District Assembly.
<p>7. International donor/aid agencies</p> <ul style="list-style-type: none"> • DFID • Irish Aid • Norwegian Embassy • USAID 	These international development agencies fund NGOs to undertake community development activities in Mphunga Group Village such as flood disaster risk reduction. For instance, the four funders listed here are supporting the programme being implemented by COOPI that is aimed at enhancing community resilience against climate change.
<p>8. Malawi State Departments and Enterprises:</p> <ul style="list-style-type: none"> • Food Security and Agricultural Extension • Community Development & Social Welfare • Malawi Human Rights Commission • Disaster Management Affairs • Office of the President and Cabinet <ul style="list-style-type: none"> • Malawi Social Action Fund (MASAF) now Local Development Fund 	<p>They make policy and also direct funds to carry out their public mandate through their district-level officers who interact directly with local farmers for instance in allocating the farm inputs subsidy, or providing social welfare or agricultural extension advisory services. They also mobilise and coordinate relief aid during floods as well as provide materials e.g. Community Development and Social Welfare assists Chitsanzo Adult Literacy club and MACOHA supports the Tiyamike club for the Disabled with training, materials & wheelchairs. The Malawi Government's Department of Extension Services is a strategic role player that offers farmers expert advice on farming and technologies. However, its level of support is adversely affected by lack of funding, resulting in the extension field officer for Mphunga Group Village not making his regular bi-weekly to monthly visits. This has forced some extension officers to work for private companies by promoting seed and various technologies, in which work they use their established and often trusting relationships with farmers.</p> <p>The state enterprises play significant roles such as local development financing, credit services to qualifying farmers and marketing of agricultural produce depending on their mandate.</p>

<ul style="list-style-type: none"> • Malawi Rural Finance Company • ADMARC 	
<p>9. Local Government:</p> <ul style="list-style-type: none"> • Salima District Assembly 	Policy coordination and support of traditional leaders, ward and village development committee structures and relief aid as well as oversee field operations of the NGOs operating in the district.
<p>10. Radio broadcasting stations:</p> <ul style="list-style-type: none"> • Radio Alinafe • Radio 1 • Zodiak Radio • Kumvela Wailesi 	They broadcast farming educational and information programs to farmers in local languages, addressing challenges such as climate change, markets, farming as a business etc. Examples of such programs include <i>Za Alimi</i> on Wednesdays, <i>Nthawi ya Alimi</i> and <i>Ulime walero</i> daily.
<p>11. Private Malawi-based Companies</p> <ul style="list-style-type: none"> • Livingstonia Beach Hotel • Farmers' World • Pannar seed company • Seed-Co Malawi 	These are private Malawian companies that play different roles from relief aid donations, promotional and field demonstrations, crop seed research and development in liaison with field agricultural extension officers.

Source: Core Reference Group Discussions, 2013