

Strengthening Food Security in Rural Ethiopia

by

Logan Cochrane

MA, Staffordshire University, 2013

BA, University of Victoria, 2006

A THESIS SUBMITTED IN PARTIAL FULFILLMENT OF
THE REQUIREMENTS FOR THE DEGREE OF

DOCTORATE OF PHILOSOPHY

in

THE COLLEGE OF GRADUATE STUDIES

(Interdisciplinary Studies)

THE UNIVERSITY OF BRITISH COLUMBIA

(Okanagan)

March 2017

© Logan Cochrane, 2017

EXAMINATION COMMITTEE

The undersigned certify that they have read, and recommend to the College of Graduate Studies for acceptance, a thesis entitled:

Strengthening Food Security in Rural Ethiopia

Submitted by Logan Cochrane in partial fulfillment of the requirements of the degree of Doctor of Philosophy

Dr. John Wagner, Associate Professor, UBC (Okanagan)

Supervisor

Dr. Jon Corbett, Associate Professor, UBC (Okanagan)

Supervisor

Dr. Kevin Hanna, Associate Professor, UBC (Okanagan)

Supervisory Committee Member

Dr. Mary Stockdale, Sessional Instructor, UBC (Okanagan)

Supervisory Committee Member

Dr. Adam Jones, Professor, UBC (Okanagan)

University Examiner

Dr. Paul Shaffer, Associate Professor, Trent University

External Examiner

Date submitted to College of Graduate Studies: March 31, 2017

ABSTRACT

Food insecurity in rural areas of southern Ethiopia is widespread; in recent years over half of all communities in this region have been reliant upon emergency support. However, food security status varies significantly from year to year, as the region experiences variations in rainfall patterns. Research is required to better understand how food security can be strengthened. To do so, this research was driven by three research questions. First, what makes smallholder farmers in southern Ethiopia vulnerable to food insecurity. Second, according to the literature, the adoption of programs and services is low, and thus a community-based assessment was undertaken to understand why. The third question reflected on the methodology – a participatory, co-produced approach, evaluating whether this form of engaged research enabled positive change.

The findings suggest that vulnerability to food insecurity differs by scale. At the community level, access to irrigation infrastructure strengthened food security, and was the most transformative difference between the communities. Within communities, food security distribution was complex and few generalizations can be made. The participatory processes identified that research often makes invisible the purposeful and insightful choices farmers make. When surveyed, they are asked to provide generalizations about input use, crop choice and practices, when in reality each crop, input and practice varies. Similarly, some commonly used measures of vulnerability can also be expressions of security; aggregated averages obfuscate localized inequality. For some programs and services, adoption was found to be quite high – it was only when all services were analyzed as a package that adoption was low. However, not all programs and services served the food insecure households, and the reasons for this are explored in detail. The participatory, co-produced approach enabled unique research questions and metrics and added significant value to the research process, which may also enable long-term positive change to programs and services.

Keywords: Food Security, Agriculture, Rural Development, Ethiopia, Co-production, Vulnerability, Adoption, Smallholder agriculture

PREFACE

This research project was approved the Behavior Research Ethics Board (BREB) at the University of British Columbia (Okanagan campus), Certificate H14-03358. I am solely responsible for the design and conduct of the research project, the analysis of the data and the writing of the dissertation.

Table of Contents

Examination Committee.....	ii
Abstract.....	iii
Preface.....	iv
List of Tables.....	vii
List of Figures.....	ix
Acronyms	x
Glossary of Amharic Terms.....	xi
Acknowledgments	xii
Dedication.....	xiv
Chapter 1. Introduction.....	1
1.1 Ethiopia.....	6
1.2 Research Questions	8
1.3 Research Area	11
1.4 Thesis Structure	15
Chapter 2. Research Area	18
2.1 Ethiopia.....	19
2.2 SNNPR.....	34
2.3 Wolaita.....	44
2.4 Damot Gale.....	53
Chapter 3. Development, Power and Politics.....	61
3.1 Encountering Food Security.....	61
3.2 Power and Politics	66
Chapter 4. On Food Security	71
4.1 Framing Food Security.....	72
4.2 Measuring Food Security.....	79
4.3 Theoretical Approach in this Research	84
Chapter 5. Methods	90
5.1 Stages of Food Security	94
5.2 Limitations	114
5.3 Risk Mitigation.....	115
5.4 Ethics Approval.....	117
5.5. Timing	120
Chapter 6. Vulnerability to Food Insecurity.....	121
6.1 Overview	121

6.2 Smallholder Farmers Vulnerable to Food Insecurity	139
6.3 Final Remarks on Vulnerability to Food Insecurity	190
Chapter 7. Adoption of Extension Services and Programs	192
7.1 Overview of Services and Programs.....	192
7.2 Adoption of Programs and Services	209
7.3 Final Remarks on the Adoption of Extension Services and Programs.....	223
Chapter 8. Impact of Participatory Engagement	225
8.1 Participation & Change.....	225
8.2 Theorizing Change	231
8.3 Reflections.....	238
Chapter 9. Conclusion	244
9.1 Findings.....	244
9.2 Options / Recommendations.....	247
9.3 Future Research.....	266
9.4 Final Words	272
References Cited.....	273
Appendices.....	325
Appendix A: Letter of Informed Consent - Individuals (English)	325
Appendix B: Letter of Informed Consent - Individuals (Amharic).....	327
Appendix C: Script of Informed Consent - Focus Groups (English).....	329
Appendix D: Script of Informed Consent - Focus Groups (Amharic).....	331
Appendix E: Script of Informed Consent - Survey (English)	333
Appendix F: Script of Informed Consent - Survey (Amharic)	335
Appendix G: Individual Interview Script.....	337
Appendix H: In-depth Interview Script.....	339
Appendix I: Focus Group Script	341
Appendix J: Preliminary Survey.....	342
Appendix K: Community Survey	345
Appendix L: Community Survey (Amharic).....	347
Appendix M: Confidentiality Agreement (English)	349
Appendix N: Confidentiality Agreement (Amharic)	350
Appendix O: Letter of Support from Dr. Yishak Gecho, Wolaita Sodo University	351
Appendix P: Ethics Approval from the Ethiopian Public Health Institute	352
Appendix Q: Scientific and Ethical Review Committee Approval	353
Appendix R: Letter of Support from SNNPR Health Bureau	354
Appendix S: Letter of Support from Woliata Zone Health Department.....	355
Appendix T: Letters of Support from Damot Gale Agricultural District Office to Sub-Districts (Adearo, Adea Ofa and Buge)	356

LIST OF TABLES

Table 6.1 Demographic and Economic Dependency Ratios.....	123
Table 6.2 Community Demographics, Government Data.....	124
Table 6.3 Spectrum of Food Security Factors, in States.....	130
Table 6.4 Household Assets by Community.....	148
Table 6.5 Intra-community Asset Differences.....	150
Table 6.6 Poverty Proxy Measures by Community.....	151
Table 6.7 Intra-community Poverty Proxy Measure Differences.....	152
Table 6.8 Average Number of Fruit Trees by Community.....	153
Table 6.9 Average Number of Fruit Trees by Food Security Status.....	154
Table 6.10 Average Livestock Holdings by Community.....	154
Table 6.11 Average Livestock Holdings by Food Security Status.....	155
Table 6.12 Highest Level of Education in Household (%)......	159
Table 6.13 Educational Enrolment Rates in Wolaita.....	160
Table 6.14 Migration Levels by Community.....	164
Table 6.15 Migration Levels within Communities.....	165
Table 6.16 Time Spent Collecting Water and Firewood (minutes).....	168
Table 6.17 Tracking Time by Activity and Gender (Averaged by Community).....	169
Table 6.18 Off-farm and Non-farm Activities (% of Community Engaged).....	173
Table 6.19 Off-farm and Non-farm Activities (% by Food Shortage Status)..	174
Table 6.20 Livelihoods by Community.....	176
Table 6.21 Livelihoods by Food Shortage Status.....	176
Table 6.22 Sources of Debt, % of Households by Community.....	178
Table 6.23 Reasons for Borrowing.....	179
Table 6.24 Percent of Community Members Receiving Remittances.....	182
Table 6.25 Household Land Size.....	184
Table 6.26 Relative Food Security Change: Compared to 10 Years Previous (%)......	187

Table 6.27 Relative Food Security Change: Compared to 25 Years	
Previous (%).....	189
Table 7.1 Agricultural Practice Prevalence, % Engaged In.....	211
Table 7.2 Agricultural Extension Support.....	217

LIST OF FIGURES

Figure 1.1 Famine in Ethiopia.....	2
Figure 2.1 Productivity per Hectare of Teff and Maize.....	32
Figure 2.2 Administrative Zones of SNNPR.....	35
Figure 2.3 Population Density by Districts, SNNPR.....	36
Figure 2.4 Fertilizer Distribution in Wolaita Zone in the 1970s and 2000s.....	39
Figure 2.5 Fertilizer and Improved Seed Distribution in Wolaita Zone (2010s)....	39
Figure 2.6 Average Teff and Maize Yields in Wolaita Zone in the 1970s and 2010s, by 100 kg unit per hectare.....	40
Figure 2.7 Enset Cultivation and Ethnicities.....	42
Figure 2.8 Administrative Districts of Wolaita Zone.....	45
Figure 2.9 Land Allocation (ha) by Crop in Wolaita Zone.....	49
Figure 2.10 Livestock Population in Wolaita Zone.....	51
Figure 2.11 Administrative sub-Districts of Wolaita Zone.....	54
Figure 5.1 Flow Diagram of Research Activities.....	97
Figure 6.1 Location of Communities within Damot Gale.....	122
Figure 6.2 The Distribution of Stages of Food Security, by Factor, in Adeaaro....	132
Figure 6.3 The Distribution of Stages of Food Security, by Factor, in Adea Ofa...	133
Figure 6.4 The Distribution of Stages of Food Security, by Factor, in Buge.....	135
Figure 6.5 Average Rainfall in Wolaita Sodo (2003-2013).....	140
Figure 6.6 Rainfall Variability in Wolaita Sodo (2003-2013), selected years.....	141
Figure 6.7 Selected Months, Rainfall 1970-2014.....	142
Figure 6.8 Seasonal Malnutrition in Wolaita Zone (New Intake of Out-Patient Child Malnutrition Cases)	144
Figure 6.9 Impact of Market Access on Child Malnutrition.....	145
Figure 6.10 Irrigation Water Reservoir in Buge.....	147
Figure 6.11 Highest Average Educational Attainment in Household (%).....	157
Figure 6.12 Percent of Households Farming less than 0.5 ha & Population Growth.....	183
Figure 7.1 Safety Net (blue) and Reports of Emergency Conditions (red).....	203

ACRONYMS

AIDS	Acquired Immune Deficiency Syndrome
CSA	Central Statistics Agency
DDT	Dichlorodiphenyltrichloroethane
DFID	Department for International Development (UK)
ECX	Ethiopian Commodity Exchange
EPHI	Ethiopian Public Health Institute
EPRDF	Ethiopian People's Revolutionary Democratic Front
ETB	Ethiopian Birr
FAO	Food and Agriculture Organization
FDI	Foreign Direct Investment
FEWS NET	Famine Early Warning System Network
FTC	Farmer Training Center
GM	Genetically Modified
GDP	Gross Domestic Product
GNP	Gross National Product
GoE	Government of Ethiopia
GPS	Global Positioning System
HIV	Human Immunodeficiency Virus
INGO	International Non-governmental Organization
MSF	Medecins Sans Frontieres (Doctors Without Borders)
NGO	Non-governmental Organization
ODA	Official Development Assistance
PSNP	Productive Safety Net Program
SIDA	Swedish International Development Agency
SNNPR	Southern Nations, Nationalities and Peoples' Region
TPLF	Tigrayan People's Liberation Front
USAID	United States Agency for International Development
WHO	World Health Organization

GLOSSARY OF AMHARIC TERMS

<i>Dega</i>	High-altitude
<i>Kebele</i>	Sub-District
<i>Kola</i>	Low altitude
<i>Marasha</i>	Traditional plow
<i>Orominya</i>	Oromo language
<i>Quantal</i>	100 kg unit
<i>Tigrinya</i>	Tigray language
<i>Wayna dega</i>	Mid-altitude
<i>Wolaitenya</i>	Wolaita language
<i>Woreda</i>	District

ACKNOWLEDGMENTS

I am motivated by the people I met throughout Wolaita for this research. I wish to acknowledge them first, and the fact that they believed in me and this research. They need not discuss for hours. But, they did. They would be justified in tossing aside yet another researcher to pass through their communities asking questions. But, they did not. My gratitude is great and my debt deep.

I am would not be where I am without family. My wife has always been there to help. My kids continue to be supportive, even if what it is that I do is only partially clear. My parents have encouraged me from the beginning. My grandparents were always willing to lend a hand and share a story. I wish to thank: the late John Johnson, Colin Welch and Janice Gladish for opening my eyes to new worlds; Dr. Mark Pinkoski for pointing me in the direction of social justice; Dieudonne Amisi Mutambala and Bilombele Asukulu Philbert for showing me the true meaning of commitment and self-sacrifice; Dr. John Wagner and Dr. Jon Corbett for the time, direction and mentorship as my doctoral supervisors and Dr. Mary Stockdale and Dr. Kevin Hanna as my doctoral committee members and teachers. I wish to thank the Government of Canada and the Social Sciences and Humanities Research Council of Canada for awarding me a Vanier Canada Graduate Scholarship and the University of British Columbia for the support it has provided.

I stand upon shoulders of giants, without whom there would be no dissertation to write. There are many people I have worked with, or whose works I have read, that have inspired me. Of these I wish to single out one: Dessalegn Rahmato. Ethiopia is not a place where critical social science research is always welcome. Despite the challenges, he has been speaking and writing for five decades. When he speaks and when he writes, it is evident that critical research is more than a career of publications and awards. Dessalegn Rahmato believes Ethiopians deserve better and that Ethiopia can be better. The criticism has a purpose and is given with passion. He has set a path for researchers to follow – a commitment to critical engagement, active participation and rigorous research.

Not done comfortably from afar; he moves from the farms to government offices and back to Ethiopia's foremost independent social science research institute where he works, which he founded two decades ago. It has been honor to know Dessalegn Rahmato, and I look forward to continued collaboration in the future.

DEDICATION

To those we routinely neglect and forget.

I have been given opportunities to see the world from your eyes. The injustice you experience demands revolutionary change. I have fallen short in acting upon that and calling for it; neglecting and forgetting. For this, I seek your pardon.

CHAPTER 1. INTRODUCTION

On October 23rd, 1984, the British journalist Michael Burek reported on the Ethiopian famine. The images altered the way Ethiopia and Ethiopians would be viewed for decades (Gill, 2010). The report began: “Dawn, and as the sun breaks through the piercing chill of night on the plain outside Korem it lights up a biblical famine, now, in the 20th century. This place, say workers here, is the closest thing to hell on earth” (BBC, 1984). When I first started working in Ethiopia in 2006, the messages I sent to friends and family reflected how I was influenced by these representations; I wrote about being amazed with how much rain there was and how green things were. While these images imprinted perceptions around the world, within Ethiopia concerns about food insecurity have deep historical and political roots. After the passing of Prime Minister Meles Zenawi in 2012, Ethiopian television stations proudly proclaimed that Ethiopia was no longer the example given in the Oxford Dictionary for the entry on ‘famine.’ It was a victory, of sorts.

The recent experience of relatively improved food security in Ethiopia has its share of successes. These ought not overshadow the significant challenges that remain, but also not be forgotten or dismissed. As Africa’s second most populous nation, and as a country that has experienced famine events, on average, once per decade for millennia (Pankhurst, 1985), extreme food insecurity is not new; improved prevention and management is. In the last century the population has grown rapidly – eighteen million in 1950, thirty five million in 1980, sixty five million in 2000 and ninety seven million in 2016 – and a series of large scale famine events have been experienced: 1888-1892, 1958, 1966, 1973 and 1984 (de Waal, 1991; Graham, Rashid and Malek, 2012; Sen and Dreze, 1999; UN, 2011; 2015; Wolde Giorgis, 1989). In the most recent three decades, however, the trend shifted, and deaths due to famine began to decline (see Figure 1).

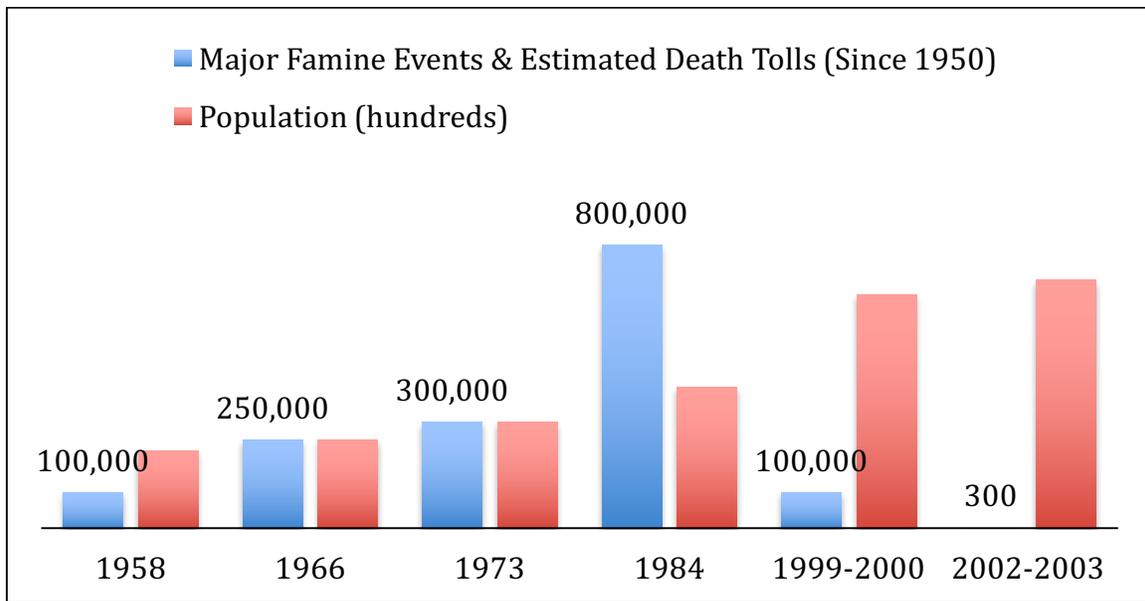


Figure 1.1 Population Growth and Death due to Famine in Ethiopia

Source: de Waal, 1991; Devereux, 2009; Dorosh and Rashid, 2012; Gill, 2010; Graham, Rashid and Malek, 2012; Sen and Dreze, 1999; Wolde Giorgis, 1989.

Notable examples of this shift are that the droughts of 1999-2000 and 2002-2003, each of which affected millions of people, did not result in significant losses of life. A study of the latter of these two events found no measurable increase of child mortality (de Waal, Taffesse and Carruth, 2006). Improved management of drought and prevention of famine-related death is an important success, yet it was based on unsustainable and costly humanitarian interventions, often made possible by international support. In 2005, Ethiopia launched Africa's second largest safety net program to support the most food insecure households with predictable, long-term support so that the reliance upon emergency aid could be significantly reduced (Coll-Black et al, 2012). Since its launch, the program has supported nearly eight million people to reduce food insecurity and has enabled farmers to retain assets during challenging years. This was another major success in the effort to strengthen food security.

Despite widespread coverage of the safety net, there were concerns that it was not enabling households to become food secure, rather that it was stabilizing households from losing assets but still leaving them vulnerable to extreme food insecurity (Maxwell et al, 2013; Rahmato, 2013; Siyoum, 2013). When the rains failed in 2015 in connection with El Niño, these concerns materialized: the government determined that the poorest remain vulnerable to food insecurity despite the safety net program having operated for ten years. Due to the drought, an additional ten million people required emergency food assistance in 2015 and 2016, beyond the almost eight million people already being served by the safety net at the time (OCHA, 2016). That almost one in five Ethiopians required emergency food aid during 2015/16 demonstrates that the transition from emergency responses to sustained and targeted support is ongoing, wherein much more progress is required. Independent studies on the impact of the 2015/16 drought are not yet available, but the loss of life is expected to be lower than that of 2002/03 (Davison, 2015).

Food insecurity impacts the lives of people in many different ways, and assessments ought not to be limited to reducing famine-related deaths. Malnutrition and micronutrient deficiencies for infants and children can result in life-long developmental consequences (Gibson, 2012; Martins et al, 2011; Rivera et al, 2003). In this regard, Ethiopia has also made some progress. Stunting due to malnutrition for children under the age of five was reduced from an extremely high rate of fifty seven percent in 2000 to forty four percent in 2011 (UNICEF, 2013). The ‘silent famine’ of chronic malnutrition due to food insecurity remains far too common, and its consequences are severe: one in every eleven children dies before reaching the age of five, thirty five percent of children are moderately underweight, fourteen percent of children are severely underweight, forty four percent of children suffer from moderate stunting and twenty eight percent suffer from severe stunting (CSA, 2011; Evans, 2012; UNICEF, 2013).

Small scale agriculture is the primary livelihood practice for the vast majority of families who experience food insecurity, malnutrition and micronutrient deficiencies. Paradoxically, it is also these smallholder farmers who are the foundation of the national economy and who are the main source of Ethiopia’s exports: agriculture accounts for nearly half of the gross domestic product (Loening, Durecall and Birru, 2009) and

agricultural products account for fifty five percent of all exports (OEC, 2014). It is smallholder farmers, as opposed to commercial operations, who farm more than ninety percent of all cultivated land – more than sixty percent doing so on less than one hectare (Taffesse, Dorosh and Gemessa, 2012).

Food insecurity is best understood in these rural agricultural contexts as a seasonal experience that reflects a dependence upon rain-fed practices vulnerable to unpredictable rainfall. Each year, during the lean season when saved yields run out, there is a spike in children diagnosed as malnourished (Cochrane and Gecho, 2016). Because the vast majority of smallholder farmers rely entirely upon rainfall for their agricultural livelihoods (CSA, 2009), rainfall variability (too much, too little or at the wrong time) can result in failed yields and cause significant increases in food insecurity, which the failure of two consecutive rains in 2015 demonstrated. As household assets are depleted, and finances limited for investing in future crops, these events can have multi-year impacts (FEWS NET, 2012b).

Progress made in reducing mortality, malnutrition and nutrient deficiencies will not necessarily continue. In fact, the trends suggest that existing programs and services will be insufficient as rainfall becomes more unpredictable due to climate change and land holding size decreases due to inheritance and fragmentation, dropping below levels that are able to meet the basic needs of households (Barker, 2007; Eriksen, 2008; UNEP, 2014; Vervoot et al, 2013; Wegner and Zwart, 2011). In some areas the average landholding size has already dropped below half a hectare, which is what some argue is necessary for basic self-sufficiency (e.g. Rahmato, 2007).

Preventing the negative impacts of food insecurity is one motivation for conducting research that aims to support the strengthening of food security. However, there are also many positive ways to frame the justification or rationale, such as positive impacts on health, strengthening of immune systems, or on education, as families are better able to send their children to school and children are better able to learn. The economic impacts of improved food security means that assets are not eroded in years of insufficient or irregular rainfall, and it means that farmers are more financially secure, as they do not need to take high-interest loans to meet their basic household needs.

Even more important, I argue, is that strengthening food security is a means to establishing and protecting the right to adequate food, which was recognized in the 1948 Universal Human Rights Declaration, stating:

“Everyone has the right to a standard of living adequate for the health and well-being of himself and of his family, including food, clothing, housing and medical care and necessary social services, and the right to security in the event of unemployment, sickness, disability, widowhood, old age or other lack of livelihood in circumstances beyond his control.” (Article 25, Universal Declaration of Human Rights)

This right has been re-emphasized in subsequent international agreements, including the International Covenant on Economic, Social and Cultural Rights (Article 11), which defined the right to food as: “The right to adequate food is realized when every man, woman and child, alone or in community with others, has the physical and economic access at all times to adequate food or means for its procurement” (FAO, 2016).

The focus of this research addresses only one component, of many, that require change in order for the right to food to be realized. Aspects of concern beyond this research include international trade regulation, unfair competition due to subsidies and profiteering in agricultural investments affecting commodity price variability, to name just three. While I am optimistic about the chances for positive change, the transformations required of the global marketplace and the restructuring of the global community necessitate radical reformation that appears unlikely in the foreseeable future. One cannot cover all relevant issues within a single research endeavor. I undertook this project recognizing its limitations while also hopeful of its potential to support the strengthening of food security by improving rural programs and services, and in the process supporting smallholder farmers to enhance their livelihoods in a sustainable way.

1.1 ETHIOPIA

Ethiopia is located in Eastern Africa, within the region known as the Horn of Africa, between the Equator and the Tropic of Cancer. Much of the nation is mountainous; the capital of Addis Ababa is more than 2,300 meters above sea level, one of the most elevated capital cities in the world. In most of the agricultural areas there are two growing seasons associated with the two rainy periods, the *meher* and *belg*. The former is the main production season, with harvesting generally lasting from September until February, while the latter runs from March until August. This generalization holds true for much of the highlands, but excludes others. For example, the Afar and Somali regions, in the east of the country, have low elevation, warmer temperatures and much less precipitation, while some of the western parts of the country have tropical rainforest environments.

Ethiopia covers an area as large as France and Spain combined, with great variation in climate, temperature, elevation and terrain (Pankhurst, 1990). The country borders six nations: Djibouti, Eritrea, Kenya, Somalia, South Sudan and Sudan. Following the independence of Eritrea in the early 1990s, Ethiopia became a landlocked nation and much of the exports are transported via ports in Djibouti. Although exceeding a million square kilometers in size, eighty eight percent of the population live in the highlands located between 1500 and 3500 meters above sea level; this area is also home to seventy five percent of all livestock and ninety five percent of total cultivated land (Dalelo and Stellmacher, 2012).

As a result of these geographic differences, livelihoods and vegetation vary from region to region. The highland areas are cereal breadbaskets and are thought to be the original locations for plant domestication of teff (*Eragrostis teff*), nug / Niger seed / blackseed (*Guizotia abyssinica*) and dagusa / finger-millet (*Eleusine corocana*) (Pankhurst, 1998). Indigenous crops that are important for national consumption include enset (*ensete ventricosum*), the stimulant khat (*Catha edulis*) and coffee, the latter two of which being primary export commodities. Other important cash crops include pulses, oilseeds and cereals. In the last ten years the flower industry has developed into one of the largest

agricultural exports in the country. Livestock populations in Ethiopia are amongst the highest in Africa, and pastoral livelihoods are primary in the east and south.

Due to the diversity of livelihoods, crops and practices, few generalizations can be made about agriculture in Ethiopia. Agricultural practices and crop types are strongly influenced by ecological zones, as the country ranges from less than 500 meters above sea level to more than 3700 meters above. Below 500m there are low levels of rainfall and agriculture of any type is only possible with irrigation; from 500-1500m, sorghum, teff and pulses/oilseeds; from 1500-2300m wheat, teff, maize, sorghum, oilseeds, barley and enset; from 2300-3200m barley, wheat, pulses/oilseeds; from 3200-3700m barley; and, above 3700m no regular crops are grown (Chamberlin and Schmidt, 2012).

Although in some parts of the ‘developing’ world, or ‘global south,’ livelihoods are becoming detached from farming (Rigg, 2006), agricultural practices continue to be important for the majority of Ethiopians (Mengistu, 2006). Some studies of ‘traditional’ agricultural practices suggest they are inefficient or harmful and require change (Coppock, 1993; Dubale et al, 2014; Mintesinot et al, 2004; Temesgen et al, 2007), while others suggest these practices are suited to the contexts within which they are practiced and may be more sustainable than their modern counterparts (Ciampalini et al, 2008; Ciampalini et al, 2012; Lemenih et al, 2004; Mesfin and Obsa, 1994; Nyssen et al, 2000; Tesfahunegn, Tamene and Vlek, 2011; Teshome et al, 1999). Yet, others find that no simple conclusions can be drawn; traditional practices may be better suited and more productive in some settings, while commercial operations and chemical inputs can be more appropriate in others (Kassie et al, 2010). This study suggests that such generalizations do not align with the experiences of farmers, whereby smallholder farmers selectively, and purposefully, integrate traditional and modern practices into different aspects of their agricultural system. I use the terminology ‘smallholder farmers’ throughout as it references the individuals and their livelihood practices, as opposed to other terms, such as peasants, which primarily focus on the relationship individuals have with the government.

1.2 RESEARCH QUESTIONS

The research presented in the chapters that follow is founded on three primary research questions, each of which focus on local processes with national implications: (1) what makes households vulnerable to food insecurity, (2) why does the literature indicate that levels of service and program adoption are low, and (3) can a participatory, co-produced research approach facilitate positive change in programs and services? A case study approach with three communities within one district was utilized in order to draw comparisons within and between them. Comparing data within communities allows for a detailed study of the dynamics and relative differences that exist when access to services and infrastructure are reasonably equal, while the cross-community comparisons provide insight about the impact that access to markets, irrigation, transportation, healthcare and education have. Recognizing the challenges of comparability in studies of this nature, the three communities were purposefully selected as sharing livelihood practices, ethnicity, language and agroecology and are located within a single district wherein programs and services are, at least theoretically, the same.

In addition to answering the research questions, this research aims to develop a methodology that enables a fully contextualized understanding of food security. National governments and the United Nations have a wealth of data about food insecurity, providing insight into the extent of the challenges and trends. The methodology developed here, and its findings, complement this data by providing an approach to identify effective and appropriate means to strengthen food security. In developing this methodology, which is based upon work by Dr. Krishna at Duke University, I emphasize the experiences, ideas and priorities of community members in understanding vulnerability to food insecurity. A participatory approach was used to co-create quantitative surveys with smallholder farmers, with the objective of identifying opportunities, strengths and challenges that may not be sufficiently addressed in the existing data.

In order to enhance and expand existing knowledge on vulnerability to food insecurity the first research question asks: What makes smallholder agricultural households vulnerable to food insecurity? While this question is not new, the process of answering it resulted in unique findings. As is detailed in Chapter 5, typical surveys conducted on food security, and those used in Ethiopia, draw upon data collection tools, household survey questions and metrics based on assumptions about vulnerability that are not embedded within or reflective of the lived experiences of those encountering food insecurity. Using broad metrics, national surveys miss relative differences within and between communities, and its questions often prioritize export crops. As a result, common results make invisible important aspects of food security and therefore the recommendations may not be appropriate, and in particular may not meet the needs of the most vulnerable. Thus, this question was approached using participatory approaches that co-created data collection tools, including determining the most relevant questions and most appropriate metrics. The methodology of which these processes are a part, is called Stages of Food Security, which has been adapted from Krishna's (2004; 2005; 2010) Stages of Progress methodology that focused upon poverty.

The second research question seeks to understand program and service adoption. In doing so, it builds upon the assessment of how smallholder farmers define food insecurity and assess their own vulnerabilities. In the process of identifying the ways in which vulnerabilities manifest, community members reflected on their experiences with the programs and services. Specifically, community members identified how their diverse practices are not captured by typical surveys. For example, they are asked to generalize about fertilizer or improved seed use, but in actuality they make choices on a crop by crop basis. Analyzing each crop and input allowed for a better assessment of the programs and services offered to smallholder farmers. The results identify key areas where programs do, in fact, meet farmer needs, as well as components that are not serving them. The co-analysis of survey results indicates how individuals identify opportunities and navigate barriers, highlighting the need for programs and services that are much more localized, adaptive and responsive.

The first and the second research questions allow for an evaluation of the effectiveness and appropriateness of rural agricultural extension programs and services. Due to the politicization of direct conversations that provide feedback on governmental programs, the evaluation of these programs and services draws upon the qualitative and quantitative data used to answer questions one and two. For some governmental programs and services, household survey data was collected on adoption (e.g. fertilizer, pesticide and improved seed), in other instances on coverage (e.g. agricultural extension worker training provision), while others draw on proxy measures (e.g. metrics related to poverty). The first two research questions enabled community members and I to co-analyze the results to offer recommendations as to how programs and services could be improved, as a means to strengthen food security. While this research is based on specific case studies, and the details cannot be generalized broadly, the insights derived on why and how programs are not meeting the needs of smallholder farmers, and the process used to arrive at these conclusions, can be widely applied. The identification of structural, institutional, design-related and implementation-based barriers reflect broader systems, and are applicable beyond the communities and district studied.

The third research question assesses the impact of the research process, and asks specifically if a co-produced approach that uses participatory processes can facilitate the strengthening of food security through engagement in collective problem definition, data collection, analysis and action. In answering the third research question I analyze theories of change wherein participatory action is foundational to change and discuss what can be learned about how change happens, reflecting on the entire research process undertaken in this study. Based upon the results and experiences, I explore other theories of change and what insight they offer into understanding the process of change within the context of rural agricultural programs and services.

These research questions were developed in 2014, before the recent wave of large-scale protests began. I first started working in Ethiopia in 2006, which followed on the heels of a controversial election and the imprisonment of large numbers of Ethiopians driven by ethnic divisions. As I gained experience in different regional states of Ethiopia I became increasingly aware of tensions that are often not spoken about openly. The description

made of Ethiopia included: increasing ethnic inequality, institutionalized, state-driven patronage, centralized political control with strong disincentives for citizens to engage, arbitrary arrests and severe restrictions on freedom of the press and freedom of speech. In many ways, the situation resembled that of Rwanda before the genocide (Uvin, 1999). Similar to other contexts, the international community, non-governmental organization and researchers have largely been unwilling or unable to openly and directly address the increase of political crises and political discontent (Autessere, 2010; Starn, 1991; Uvin, 1999). During the last three years hundreds of large-scale protests have occurred throughout rural and urban Ethiopia, and the third research question is timely and relevant to issues well beyond the challenges of rural agricultural programs and services.

1.3 RESEARCH AREA

The research presented in this thesis is centered upon fieldwork that was conducted in the Southern Nations, Nationalities and Peoples' Region (SNNPR) of southern Ethiopia. Twenty percent of Ethiopia's ninety seven million people live in this region, making it amongst the most populous regions (along with Oromia and Amhara). The reason SNNPR was selected was the convergence of two unique factors, both of which play a significant role in food insecurity. The first factor is that SNNPR has the highest rural population density in the country (CSA, 2007), and in many ways what is happening in parts of SNNPR now may indicate what will happen elsewhere as population continues to increase.

The second factor that makes SNNPR unique, or at least the central part of the region, is its rainfall situation. Central SNNPR is neither rain secure, as the highlands tend to be, nor does it consistently lack rainfall, as is common in the arid Somali and Afar regions. Rainfall is particularly important in SNNPR as the vast majority of smallholder farmers practice rain-fed agriculture. Year-to-year variability provides unique insight into the dynamics of inequality, population, land size, seasonality, rainfall, climate change and the

impact of interventions designed to strengthen food security. In years when rainfall is too little, too late or at the wrong time the impact can be devastating. For example, consecutive seasons of low agricultural production resulted in emergency situations in 2011 and 2012 (FEWS NET, 2012b) and in the latter year fifty five percent of the districts in SNNPR were chronically food insecure (FEWS NET, 2012b).¹ Difficult years such as 2012 result in multifaceted, negative impacts, that include the loss of assets and significant increases of child malnutrition. In other years, such as 2013 and 2014, the region experienced relatively higher levels of food security, and relatively low levels of child malnutrition (Cochrane and Gecho, 2016). Even in years when harvests are strong and food security increases for SNNPR, a significant minority remain chronically food insecure. Thus, unique environmental and demographic factors make SNNPR a particularly challenging context wherein more research is needed.

Within SNNPR, research was conducted in three sub-districts (*kebeles*), within the Wolaita Zone. These areas were selected due to high population density within SNNPR, high levels of chronic food insecurity and their respective differences within a similar agroecological setting: one rural and remote, another rural near to a market town, and the third rural with irrigation infrastructure. The root-crop based agricultural system, described in Chapter 2, is representative of the majority of the Wolaita Zone. The exceptions include parts of Humbo and Diguna Fango districts, which are lowland areas and where root crops are less common. These two districts are not included in this study, and their unique agricultural contexts beyond its scope.

The selection of these districts for study was in response to the complex and overlapping layers of vulnerability experienced within them (Husmann, 2016; Rahmato, 2007). The vulnerabilities experienced are an expression of regional, national and local contexts, opportunities, limitations and barriers. One of Ethiopia's foremost scholars who has studied issues related to food security, and conducted research in Wolaita, explained that positive change "must first be based on a clear and in-depth understanding of the lives and livelihoods of the people and the farming systems that they have evolved over the

¹ The use of chronic food insecurity in this dissertation refers to the dimension of time. As opposed to a short-term, transitory or emergency of insufficient food, chronic food insecurity refers to a long-term or persistent inability to meet minimum food requirements.

generations” (Rahmato, 2007: 34). Despite the severity of food insecurity within Wolaita Zona, Rahmato (2007: 23) writes that “no attempt has been made to estimate the magnitude of poverty from the point of view of food insecurity.” This research attempts to address part of this knowledge gap by presenting detailed data about food security using in-depth, contextualized research.

In addition to the need for research to inform policy making, programs and services specific to this region, the institutions and systems that operate within SNNPR are common in nearly all parts of Ethiopia and thus this research offers broad insight into the nature of food security and the ways in which programs and services impact individuals and communities throughout the nation. There are findings and recommendations that are specific to Wolaita, and even the districts within Wolaita wherein the study took place, and these ought not be overgeneralized. At the same time, the research provides new knowledge on broader questions within the food security discourse that are applicable for audiences in Ethiopia, East Africa and beyond. The methodology is applicable globally, and provides new avenues for assessing and understanding food security.

The three primary research questions, while specific to Ethiopia, take place within a global context wherein food insecurity continues to be one of the world’s greatest challenges. The United Nations’ World Food Program estimates that more than 870 million people are chronically hungry (WFP, 2014). The burden of this problem is greater in developing countries, and particularly in sub-Saharan Africa, which has the highest prevalence of people facing chronic hunger. Furthermore, the challenges of food insecurity are experienced disproportionately by smallholder farmers, who constitute the majority of the global population experiencing poverty and food insecurity (Gibson, 2012).

Despite gains made during the 1980s and 1990s, in the most recent decade the number of people who are chronically hungry has steadily risen (WFP, 2014). The smallholder farmers within Wolaita Zone, and Ethiopia more broadly, exist within a world wherein over 400 million of 525 million (76%) farms are managed by smallholder farmers on less than two hectares of land (Gibson, 2012). These smallholder farmers, moreover, occupy

about a third of all arable land globally and “these smallholders effectively contribute about half of the world’s total food supply” (Gibson, 2012: 316). Yet, it is these same people who experience the greatest vulnerability to food insecurity. Strengthening food security in Wolaita has the potential to offer pathways for positive change for smallholder farmers around the world.

Globally, the rise of people who are food insecure has not been a result of having insufficient food; rates of agricultural production have risen faster than population growth (FAO, 2012a). The distribution, however, is unequal. Agroecological settings affect the production potential of individuals and countries, such as rainfall, soil types, land size and water availability. For example, while much of North and South America, Europe and South East Asia have per capita food production above 8,000 kcal/day, per capita production in much of Africa, the Middle East and Asia is less than half or a quarter of that level (FAO, 2012a). Food insecurity is not solely related to geography, however, there are limitations and opportunities related to different supportive systems and infrastructure. At the individual and household levels, barriers to obtaining food primarily revolve around localized challenges, such as accessibility, production, seasonality, poverty and inequality.

Regions that currently have lower per capita food production, such as East and Central Africa, the Middle East and North Africa and parts of Asia (specifically from Iran to Bangladesh), are also ones that have high population growth rates, and where much of the projected global population growth is projected to occur (FAO, 2012a; UN, 2011). Additionally, these regions face the greatest overall vulnerability to the negative impacts of climate change (CGD, 2014). Compounding issues of regional availability are the ways in which existing resources are utilized, such as shifting dietary composition to ones that include more meat and dairy products, as well as shifting land use to grow crops for non-food use, such as biofuels (Brown, 2012; Cotula, 2013; FAO, 2012a).

High levels of chronic hunger, and expectations that the situation may worsen (Hallegatte et al, 2016), have resulted in a great deal more focus on food security. This study highlights how the global trends of food insecurity may worsen, by exploring case studies in Ethiopia. In doing so, it emphasizes how definitions and metrics greatly affect the

understanding of food security, and thus the ability to appropriately and effectively design programs that reduce vulnerabilities and strengthen food security.

1.4 THESIS STRUCTURE

This opening chapter presents a broad overview of the research questions, area of study and justification for its importance. The second chapter of this thesis delves into the details of the research area. The sections progressively narrow down in their focus: starting with the country, then the regional state, the zone and then the district. In presenting the research area, this chapter highlights the political, environmental, historical, socio-cultural and livelihood contexts. Varying degrees of emphasis are given to each thematic area in the sub-sections by highlighting unique features that contribute to food security. Although this chapter is detailed, it is selective. For example, while relevant, the governmental and constitutional structure (formal and informal) are presented in brief, as the details require entire texts (e.g. Abebe, 2016; Kefale, 2014). Other specific details, such as the number of livestock holdings in the area of study, are presented as they offer insight into the livelihood options, opportunities and limitations. In my selectivity of data to present, the chapter aims to provide relevant information for a comprehensive contextualization of the research area.

Chapters 3 and 4 outline the theoretical framing and positionality on development and food security respectively. In analyzing the concept of development, I pay explicit attention to the role of power and politics, and specifically how development activities, including agricultural programs and services, can become highly politicized. While Chapter 3 outlines how development is politicized, this idea runs throughout the dissertation, and is first presented in Chapter 2 in discussing the quality of data and the existence of multiple, irreconcilable data sets. The chapter on food security specifies how the framing and measurement of food security significantly affects the understanding of it, responses to it, and broadly situates my own approaches.

The methodology developed for, and used within, this research is outlined in Chapter 5. As the Stages of Food Security methodology is an adaptation of an existing model that offers new approaches and foci, the chapter provides a detailed outline of the processes involved. It is hoped that this chapter, along with subsequent publications devoted specifically to the methodology (Cochrane, 2017a), will enable other researchers to utilize and further adapt this research approach. In addition to processes, this chapter presents the limitations of the methodology and this specific implementation of it. Although less commonly presented, I included information about the process of obtaining national ethics approval from Ethiopian authorities as well as situating the timing of the research within broader political and social events. The explanation of how ethics approval was obtained from Ethiopian authorities and the research timing offer insight into my positionality as a researcher and the research process. The ethics approval and letters of support from national, regional, zonal and district authorities are included as appendices (See Appendices P, Q, R, S and T).

Chapter 6 draws upon qualitative and quantitative data to analyze what makes smallholder farmers vulnerable to food insecurity. For the purposes of readability, the data was divided into themes (seasonality, rainfall, poverty, location, education, inequality, diversity, population and land size, change over time) but in reality these themes are interconnected. To the extent possible, I have attempted to reinforce the complexity of smallholder farmer realities, rather than present them as compartmentalized, technical and simplified factors. Chapter 7 draws upon the findings of vulnerability to food insecurity to analyze the programs and services offered to smallholder farmers and the reasons why the literature suggests that adoption for some programs and services is low and why discontinuation is relatively high.

The methodology developed for this research is rooted in participation and co-production. Chapter 8 explores the assumptions embedded within the theory of change that informs approaches driven by participatory approaches and co-production, and examines to what extent this process enabled positive change. In doing so, I present alternative theories of change and reflect on how these different ideas can facilitate an understanding of why change did or did not occur. The chapter concludes with the

limitations of planned theories of change and the opportunities offered by emerging approaches that emphasize learning, adaptive management and complexity-based approaches.

The final chapter of this dissertation outlines conclusions, primarily in relation to the three research questions posed at the outset. It offers recommendations as well as highlights areas for future research. A large number of appendices have been included as a means to enhance the transparency of the research process and to support researchers who wish to undertake research using the Stages of Food Security methodology. This includes informed consent forms, scripts, surveys and confidentiality agreements used in this research. Of note, however, is that with the exception of one household survey, these materials were written in advance of the research, as required by my host university ethics approval process. As outlined in the preamble of a number of these forms, a more iterative approach was used in the actual implementation of the research.

CHAPTER 2. RESEARCH AREA

Ethiopia is home to a diversity of ethnic, linguistic and religious groups. It also has diverse agroecological settings wherein myriad livelihoods are practiced, adapted and changed. This research took place within a single agroecological area, which is where a single ethnic and linguistic group live and where two sects of Christianity predominate, as detailed in Section 2.3. This area, however, exists within a nation and a regional state that influence the available options, opportunities and limitations, which are respectively introduced in Sections 2.1 and 2.2. Entire volumes have been devoted to Ethiopia's general history (Pankhurst, 1998), its agricultural history (McCann, 1995), its social history (Pankhurst, 1990) and its peripheral areas (Pankhurst, 1997). Books have also been written on specific food insecurity events in Ethiopian history (de Waal, 1991) as well as on contemporary food insecurity challenges (Rahmato, Pankhurst and van Uffelen, 2013). This chapter summarizes and situates the components that are relevant to the research and that have direct impacts on the research site. Determining what is excluded, and what amount of background detail is required, is a challenging task; invariably some readers will feel important aspects are underrepresented, while others may find it overly detailed. I have attempted to find a balance that does not present a comprehensive background on Ethiopia, but a sufficient amount of context to provide a narrative around the conditions, policies, programs and services that exist within the research site.

2.1 ETHIOPIA

History

The borders of Ethiopia are a relatively modern phenomenon. The empires of ancient history were largely based in the northern and highland areas, from the D'mt in the 10th century BCE to Solmonic Dynasty of the 13th century. It was not until Tewodros II in the 1850s, and Menelik II in the 1880s that 'unification' and expansion processes resulted in the forming of what would become the nation of Ethiopia. Of note, however, is that those who were conquered in this process do not view it as unification, but colonization. Since many regions are relatively recent additions, and its inhabitants faced marginalization once incorporated, tensions between loyalty to the nation and to one's ethnic group continue to be one of the most challenging domestic issues. For example, during the run-up to the election in 2015 I was in Benishangul Gumuz regional state, wherein politicians from the majority ethnic group of that regional state promised that if elected they would kick out the "red" people, meaning the Amhara and Tigray people, and take back the land that had been stolen from them.

The rate and scale of globalization that has emerged in recent decades is unprecedented. Yet, the international exchange of goods and ideas has long been practiced, and the lands that would become Ethiopia have always played an important role. Trade in ancient times occurred with the Pharaohs of Egypt, to areas in present day Sudan, to and from the Middle East and India (Pankhurst, 1998). In international trade markets, Ethiopia was known as a source of gold, ivory, myrrh and slaves, for which it would trade weaponry and luxury goods for the elite, such as Mediterranean wines (Pankhurst, 1998). International interactions were not limited to trade, however. The Aksumite Empire conquered southwestern Arabia and Sudan between the 3rd and 6th century (Pankhurst, 1998), making it one of the most important political empires of the world, along with Rome, Persia and China (Munro-Hay, 2002). It also embraced Christianity as a state religion in the 4th century, making it one of the first Christian nations (Sulas, Medella and French, 2009). The Aksumite Empire was the only African empire to mint its own

currency, which was valued on par with Roman and Byzantium coinage. The empire fell in the 10th century and was followed by the Solomonic line of rule, the leaders of which claimed lineage from King Solomon of Israel and the Queen of Sheba, whose meeting is described in a Biblical account but whose supposed progeny are not (1 Kings 10:1-13).

The rise and fall of empires is beyond the scope of this chapter. However, the historical experience of food security warrants some discussion. Agriculture played an important role in the early empires, with historical records suggesting that, at least for the land-holding class, significant relative wealth could be obtained from yields and livestock (D'Andrea et al, 2008; Munro-Hay, 1991; Pankhurst, 1990). At the same time, however, drought and famine have been recorded for at least a thousand years; between the 15th and 19th centuries, for which greater data is available, historian Richard Pankhurst suggests that a famine occurred, on average, once per decade (Pankhurst, 1985). A major famine occurred between 1888 and 1892, known as the 'evil days,' wherein a third of the population may have died (Sen and Dreze, 1999). Famine occurred in Tigray in 1958, and in Wollo in 1966, respectively resulting in the loss of an estimated 100,000 and 250,000 people (Graham, Rashid and Malek, 2012). Famine occurred again in Wollo in 1973 causing the death of 40,000 (Gill, 2010) to 300,000 (Graham, Rashid and Malek, 2012) people. This was one of the first famine events to be shown on international media. The 1984 famine resulted in the death of between 400,000 (de Waal, 1991) and 1.2 million (Wolde Giorgis, 1989). Politics played heavily into the death toll of the latter of these famine events, as the government sought to contain people from supporting and/or joining rebel movements, as it fought against these groups in the north and east, and then resettled massive numbers of people in a large-scale villagization scheme. Alex de Waal (1991) suggests that 50,000 died due to the resettlement process itself, while Doctors Without Borders (Medecins Sans Frontieres, MSF) suggest the figure was closer to 100,000 people (Gill, 2010).

The modern Ethiopian state took its form during the reign of Menelik II, who ruled from 1889-1913. Under his lead, the nation expanded and conquered much of southern and eastern Ethiopia, developed currency and postage stamps, introduced piped water, established a railway and telegraph line and founded modern hospitals and schools

(Pankhurst, 1998). Menelik II defeated an Italian attempt of colonization in 1896. Menelik II was followed by Empress Zewditu in 1916 and then Emperor Haile in 1930, the latter of whom experienced a return of Italian forces, who occupied Ethiopia from 1936 to 1941. The Italian forces were defeated with allied support as a part of WWII.

The Solomonic dynasty came to an end in 1974, when it was overthrown by the Marxist-inspired Derg government. A coalition of rebel groups, largely led by the Tigrayan People's Liberation Front (TPLF), took power in 1991. Meles Zenawi, chairman of the TPLF and the Ethiopian People's Revolutionary Democratic Front (EPRDF), was the transition President of Ethiopia following the fall of the Derg, and Prime Minister of Ethiopia from 1995 to 2012. After his unexpected death, the constitutionally mandated successor, Hailemariam Desalegn, took over. This Prime Minister has continued to lead the party, which has won every parliamentary election since coming to power (along with its allied parties), including every single seat in the 2015 election (NEBE, 2015).

Politics & Policymaking

The Federal Democratic Republic of Ethiopia is composed of the federal government and regional states. The lowest level of government is the sub-district, *kebele*, followed by the district, *woreda*, and then the zone, which are administrative levels under the regional state. Article 50 of the constitution outlines that the regional states are “responsible” to residents of that state, and that lower levels of government are granted “adequate power” to make decisions accordingly (GoE, 2014). The constitution gives the federal government power to “formulate and implement the country’s policies, strategies and plans in respect of overall economic, social and development matters” as well as to “enact laws for the utilization and conservation of land and other natural resources” (Article 51; GoE, 2014). While the federal government “shall formulate and implement the country’s policies”, the regional states have jurisdiction in some areas (those not “given expressly to the Federal Government alone”, Article 52 of the Constitution). Constitutionally, therefore, the regional states potentially have the power to create and implement policy. In practice,

however, the federal government continues to centralize power, even through its decentralization initiatives (Chinigo, 2013; Mezgebe, 2015).

Regional states have exercised their power through creating and implementing some development policy, such as the first pilot of the land certification scheme and unique regulations of land inheritance. Both of these processes, however, operate within the bounds of federal policies regarding land tenure. As such, the federal government remains the primary creator of policy, and delegates jurisdiction and responsibility, allowing regional states to tailor some of the details for their particular contexts.

When the EPRDF came to power in 1991 they “understood the role that famine had played in its victory” (Graham, Rashid and Malek, 2012: 263). The members of the new government had lived through, and fought amidst, famine. Its members had also witnessed two governments weakened, if not toppled, as a result of their lack of action on addressing emergency needs and ensuring food security. When in power, the EPRDF set about to support the majority rural population, placing them at the center of their major policy documents, including: Agricultural Development-Led Industrialization (1992), the National Policy on Disaster Prevention and Management (1993), the Sustainable Poverty Reduction Strategy (2002) the Plan for Accelerated, Sustained Development to End Poverty (2006), and the Growth and Transformation Plan (2010). The government also upheld, and created, a number of bodies to support this work, such as the Agricultural Input Supply Enterprise / Agricultural Inputs Supply Corporation, Emergency Food Security Reserve Administration, Ethiopian Grain Trading Enterprise (1992), Productive Safety Net Program (2005), the Ethiopian Commodity Exchange (2008), Disaster Risk Management and Food Security Service (2008), Household Assets Building Program (2009), and the Ethiopian Agricultural Transformation Agency (2010).

Ethiopia has limited political freedom; in both the 2005 and 2010 elections key opposition party leaders were imprisoned (Abbink, 2006; Tronvoll, 2010). In the halls of government, there is a softly spoken debate that reflects the origin of democracy in the Athenian sphere. The ruling elite have, in practice, taken the Platonic approach of opting for rule by the self-determined wisest and best. Some parts of the population tacitly approve of these choices, believing the alternative options are worse, pointing to the

situation in neighboring Somalia, Eritrea and South Sudan as examples of why the stability of a non-democratic developmental state is better than the perceived alternative of a failed state. Government narratives reinforce this dichotomy by stifling political opposition, freedom of speech and freedom of the press, thus limiting the space for viable alternatives. However, there is discontent with the status quo, which is often driven by ethnic politics, but increasingly by a general discontent regarding the lack of inclusive democratic processes. An example of this is the activism of the sizable Muslim population who have, practically for the first time in this historically Christian state, attempted to utilize the democratic process to have their concerns heard and their rights upheld, to address their lack of representation and marginalization, as well as to challenge the arrest of their religious leaders without charge (Feyissa and Lawrence, 2014). The rise of mass collective action in 2016 resulted in the government instating a state of emergency in October, scheduled to last for six months, as a means to maintain power and control. Unless the democratization process moves beyond rhetoric, the fate of the current political elite may not be determined by the ballot box, but at the hands of the people.

Population

The last national census took place in 2007, and since that time population data has largely been based on projections, resulting in significant discrepancies. For example, the Government of Ethiopia projected that the population was 87.9 million (CSA, 2013) while the World Bank projected 96.9 million (World Bank, 2016). This discrepancy amounts to a larger population than neighboring Djibouti and Eritrea combined, and almost as much as the entire population of neighboring Somalia or South Sudan. While this specific point is not an essential one with regard to the research questions, it highlights the problematic nature of data in Ethiopia; in many instances the figures provided by federal, regional, zonal, *woreda* and *kebele* level administrations are best viewed as approximations.

Based upon available data it is clear that the national population has grown steadily over the last century, a trend that is expected to continue until 2050. In 1960, the national

population was estimated to be twenty two million, which had more than doubled by 1990, to forty eight million, and again doubled by 2014, rising to ninety seven million (World Bank, 2016). The United Nations projects that the population will double again by 2055 at 200 million, and will stabilize by the end of the century at around 240 million (UN, 2015). Based on global population growth, by 2050 Ethiopia will be amongst the top ten most populated countries in the world and will remain so throughout the rest of the century (UN, 2015). At present, the urban population is low (16%), and urbanization rates are relatively low compared to global and regional ones, yet these urbanization rates are affected by definitions and some suggest the urbanization rate may be as much as double the government listed rate of four percent (Chamberlin and Schmidt, 2012). In either case, the predominantly rural population who are engaged in smallholder agricultural livelihoods will encounter increasing pressure on land distribution as the population continues to grow.

Religion and Ethnicity

Ethiopia is home to great religious and ethnic diversity. There are an estimated eighty ethnic groups, most of which are officially recognized by the Government of Ethiopia and recorded in national census data. The two largest ethnic groups are the Oromo (35%) and Amhara (27%), followed by Somali (6%) and Tigray (6%) (CSA, 2007). Ethnic division is often aligned to linguistic groupings, with multilingualism being common and linking smaller linguistic groups with larger ones. For example, an ethnic Harari living in the city of Harar will speak Harari (called *Gey Sinan* by its own speakers, a name rarely known by non-speakers) at home and with fellows of their ethnic group, but they will also speak the national language of Amharic, have a basic knowledge of English from the public school system, and the elder generation able to read and write Arabic (this is less common amongst the youth today). In Wolaita the lingua franca is *Wolaitenya*, the local language of the ethnic group. Outside of the towns, there are few speakers of Amharic. More than the national language, people in Wolaita speak Oromiffa, an important regional language.

Religious affiliation is typically divided into three groups: Christianity, Islam and Traditional Faiths. However, the divisions within these groups are also significant, such as those between Ethiopian Orthodox, Protestant and Catholic. Residents in rural areas will often avoid intermarriage amongst these different Christian sects. In addition, syncretism is common. For example, someone classified as a Muslim may, in numerous aspects of their life, prioritize rites of traditional faiths over those of Islam. Syncretism between Christianity or Islam with traditional faiths is common in Ethiopia and is manifested in diverse ways (e.g. Braukamper, 1992; Vecchiato, 1993).

Historically Ethiopia was known as a Christian state, and governmental statistics continue to show that Ethiopian Orthodox Christians are the majority of the population. The statistics on religious demographics, however, are contested. Government data is the only available nationally-representative data, which suggests the percent of Muslims in 2000 was 33 percent (CSA, 2000) and 34 percent in 2007 (CSA, 2007). Although the source is not cited, a report commissioned by the United Nations in 2006 suggested that the Muslim population was 45 percent (Barnes, 2006), which was a figure also listed by the U.S. State Department (2007), making it the largest religious group. However, in recent reports the U.S. State Department lists the Government of Ethiopia data (e.g. U.S. State Department, 2014). While this figure does not directly affect the study, it highlights the politics of data.

The intersections of religion, ethnicity and language, and their impact on daily life cannot be understated. Regional states are, largely, drawn upon ethnic boundaries, which are reinforced through regional language policy. Local languages are commonly the primary language of instruction, after which the language of instruction is English. The result is that many children do not become proficient in the national language. As a consequence, in many parts of the country, the national language of Amharic is not commonly spoken. In the research area of this study, for example, Amharic was not written or spoken by the majority of rural residents.

The ethno-linguistic grouping to which one is affiliated influences choices of day-to-day life, such as who to marry (and not marry) and where one chooses to live (or not live), as well as components of life that might not often be associated with ethnicity or religion,

such as choice of bank and where one chooses to shop (or not shop). These choices are purposeful and made at an individual level. Some of these choices are displays of power, such as when federal government personnel speak *Tigrinya* to each other in government offices (not the national language) and similarly when the regional Oromia government personnel only speak Oromiffa (in Amharic: *Orominya*), even when Amharic is known and the service-seeker is not a speaker of Oromiffa.

Religion plays a significant, and divisive, role in Ethiopian society. In many cases, religion is perceived to be a part of ethnicity. While this is not always the case, Ethiopians make, and reinforce, relationships of this kind: Amhara are Orthodox, Somalis are Muslim, Wolaitans are Protestant, Hararis are Muslim, Gumuz practice a traditional faith, Agaw are Orthodox, Afaris are Muslim, and so forth. Without doubt, there are many exceptions to these generalizations; however they tend to persist since, by and large, these statements do represent the majority and reflect historical notions of identity. In many instances, religion and ethnicity overlap, and their impact on personal choices and societal engagement reflect this, thus establishing a religious-linguistic-ethnic nexus.

Developmental Context & Challenges

Over the last decade, Ethiopia has experienced rapid economic growth, ranging between 8.6 percent and 12.6 percent annual gross domestic product (GDP) growth (World Bank, 2016). Despite its economic growth, however, Ethiopia has one of world's lowest gross national income's per capita, at US\$550 (World Bank, 2016; using 2014 figures). During this period of growth, school enrolment has risen rapidly, reaching ninety five percent. But, while children throughout the country are gaining access to education, the national literacy rate is forty seven percent, which is significantly lower for women at thirty eight percent, and also disproportionately lower in rural areas (CSA, 2012).

Life expectancy has increased to sixty four years, higher than the average for sub-Saharan Africa and the average for low income countries (World Bank, 2016). Poverty has declined from 45.5 percent in 1995 to 29.6 percent, an achievement that has occurred

amidst significant population growth (World Bank, 2016). However, it ought to be noted that the declines in poverty that are often touted by the government have been challenged as being inaccurate, or at best as only part of the story. Devereux and Sharp (2006) find problems with the government methodology, cite studies showing the opposite trend, and highlight the neglect of seasonality, which as shown in Chapter 6 has a significant impact on the results. Research by Devereux and Sharp (2006) themselves identify high levels of poverty and that these numbers are increasing over time, not decreasing. Sundaram (2016) has shown that there are methodological problems with many of the assessments suggesting rapid declines of poverty around the world. Nonetheless, the government data, which is promoted by international agencies such as the World Bank and USAID, indicate significant reductions of the percent of people living in poverty.

This study makes clear seasonality's key role in vulnerability to food insecurity, and yet, as Chambers has stated the topic remains "grossly neglected" (2012a: xv). Hirvonen, Taffesse and Worku (2015: 2) state that despite the recognition of intra-annual shifts in health and nutrition "seasonality generally has received less research attention and has been largely neglected in the policy arenas." The findings outlined in Chapter 6 show the impact of seasonality on child malnutrition diagnoses that result from insufficient food quantity (diagnosis requires significant wasting), but less is known about nutrient fluctuations, in other words the seasonality regarding the quality of diets. Evidence indicates that in rural Ethiopia there are seasonal drops in average per capita caloric intake (10%) and similar declines in average diet diversity (7%) (Hirvonen, Taffesse and Worku, 2015). The study of Hirvonen, Taffesse and Worku (2015) is important, but has a number of limitations. In Chapter 6, I show that the impact of seasonal changes varies significantly from year to year, and their study only draws upon one year (2010-2011). Additionally, the averaging of all rural households makes invisible the inequalities that exist between households, while quintile-based assessments of changes to diet quantity and quality would have been much more beneficial in understanding the impact. Further research is needed to better understand these trends using the Household, Consumption and Expenditure data, collected by the Ethiopian Central Statistical Agency. Based on the available data, and drawing upon research from other countries (Devereux, Sabates-Wheeler and Longhurst, 2012; Devereux, Vaitla and Hauenstein-Swan, 2008; Gill, 1991;

Sahn, 1989), it is evident that an understanding of seasonality is crucial if food insecurity is to be reduced, and must be taken into account in the design and implementation of programs and services.

Health coverage has risen rapidly since 2006. For example, although HIV and AIDS is complex for health systems – from testing to calibrating diagnostic machines and adjusting treatment regimens – there has not been a single case of treatment interruption, and coverage has reached eighty percent, rising from less than ten percent in 2006 (Tadesse, Jamieson and Cochrane, 2015). Yet significant challenges remain. Although progress has been made in expanding healthcare coverage and providing services, one in every eleven children die before the age of five, and well over half of all births are not attended by a care provider; three quarters of children (12-23 months) are not vaccinated, only four percent of infants (6-59 months) are fed according to the WHO Infant and Young Child Feeding practices; almost half of all children (6-23 months) are anemic; and, maternal deaths account for thirty percent of all deaths of women aged 15-49 (CSA, 2011). As mentioned in Chapter 1, malnutrition levels are extremely high in Ethiopia: thirty five percent of children are moderately underweight, fourteen percent are severely underweight, fifty one percent suffer from moderate stunting and twenty eight percent from severe stunting (Evans, 2012). These health impacts are compounded by limited access to clean water and sanitation services. National level statistics indicate that almost half of all households do not have access to an improved source of drinking water, only eight percent have an improved toilet facility and three-quarters of homes lack electricity (CSA, 2011).

Ethiopia has made impressive progress in reducing the loss of life due to famine. Whereas droughts and famines in the past resulted in tens or hundreds of thousands of lost lives, the droughts of 1999-2000 and 2002-2003, despite affecting millions of people, had no measurable increase in child mortality (de Waal, Taffesse and Carruth, 2006). Yet food insecurity remains chronic and the nation relies upon aid and trade to manage food deficits; between 1985 and 2001 food aid contributed ten percent or more of total food demand (Dalelo and Stellmacher, 2012). The Productive Safety Net Program (PSNP), started in 2005, is one of Africa's largest efforts to provide multi-year transfers to the most

food insecure households to protect the loss of assets. While it is undoubtedly having a positive impact on income and health, there are also political implications to the implementation of this program (Cochrane and Tamiru, 2016; see Chapter 7). As indicated by the statistics on malnutrition and stunting, the improvements have yet to address the ‘silent famine’ of chronic food insecurity.

Based upon health and education indicators, residents of the so-called ‘emerging’ regions of Ethiopia face significantly greater challenges than their fellow citizens - this category is used by the Government of Ethiopia (e.g. MFA, UNCDF and UNDP, 2007), and is defined as faring poorly compared to other regions, on the basis of measures of poverty, of basic services and availability of basic infrastructure. These regions have been largely excluded from nation-building, and for many of their residents the narrative of colonialism is better suited than that of national building. Weber’s description of the processes occurring in rural France in the 1800s seems a fitting description of governmental efforts in recent decades: “...the unassimilated rural masses had to be integrated into the dominant culture as they had been integrated into an administrative entity. What happened was akin to colonization and may be easier to understand if one bears that in mind” (1976: 486). In the Ethiopian context this includes the administrative description of residents of these areas as backward, as well as the residents themselves describing the ‘national’ language as a slave language and its speaking as a constant reminder of the dominance of northern highland peoples over the rest.²

² On one occasion in eastern Ethiopia some people refused to speak with me because I had learned and used the ‘slave language’ and not a local language. The gravity of these issues are not specifically linguistic, but also historical and cultural; many regions pass on detailed histories of the atrocities they endured as their people were brought under the control of the Ethiopian state (for many this occurred in the late 1800s, but for some it continues). The stories of oppression and injustice are reinforced in a variety of ways; one example of this comes from eastern Ethiopia where the interior of a certain part every house is painted red, representing the blood of their young men killed by the government. The 2015 election provided many examples of ethnic-based rhetoric and the perception of colonization, whereby people were encouraged to vote for someone from “their people” so that the invading northerners could be kicked out of their lands and their properties confiscated.

Agricultural Sector

Ethiopia is primarily an agricultural economy built upon smallholder agriculture. Almost half of the GDP is agriculturally based, and smallholder farmers cultivate more than ninety percent of agricultural land (Taffesse, Dorosh and Gemessa, 2012). Exports are also primarily agricultural, including coffee, khat, oil seeds, fresh cut flowers, cereals and vegetables (Cochrane and O'Regan, 2016; NBE, 2014). Nearly eighty five percent of employment is within the agricultural sector, which is an area of the economy that continues to grow in importance with time (Loening, Durevall and Birru, 2009). The foundation of this sector, individual smallholder farmers, face vulnerabilities due to unpredictable rainfall and a lack of irrigation (Cochrane and Gecho, 2016).

'Smallholder farmers' are defined as those who cultivate less than 25.2 hectares of land and largely produce for their own consumption with the surplus for market sale (Taffesse, Dorosh and Gemessa, 2012). In practice, holdings are much smaller: sixty percent of smallholder farmers cultivate less than 0.9 hectares of land and forty percent less than 0.52 hectares (Taffesse, Dorosh and Gemessa, 2012). In the highland areas, per capita land holdings have dropped from 0.5 hectares in the 1960s to 0.2 hectares as of 2008 (Spielman, Mekonnen and Alemu, 2012). Smallholder farming is almost entirely rain-fed (CSA, 2009) and due to declining landholding size as a result of population growth, productivity per household and average yields per capita are declining (ACCRA, 2011).

The Government of Ethiopia encourages the use of market-based inputs (fertilizer and pesticide) and improved seed varieties; it supports research and provides subsidies (when direct subsidies for inputs have not been applied the subsidization is indirect as the government offers credit services and uses the governmental agricultural extension system for promotion and distribution). However, uptake of improved varieties was mixed; as of 2008 seventy one percent of wheat crops were improved varieties but only twenty percent of maize, and adoption of improved varieties of other crops is lower still (Spielman, Mekonnen and Alemu, 2012). About a third of all smallholder farmers use fertilizers (the CSA reported 39% and the ERSS 32%), largely for teff, wheat and maize production (Spielman, Mekonnen and Alemu, 2012). Credit barriers and low and inconsistent levels of input supply prevent greater uptake. Services advocated by agricultural extension

workers, such as planting methods, experience mixed uptake, with a discontinuation rate potentially as high as a third of all these adoptions (Bonger, Ayele and Kuma, 2004; EEA/EEPRI, 2006).

Commercial farms, held by the state or by the private sector, are defined as being larger than 25.2 hectares, but in actuality average 323 hectares in size. The products of these farms are sold to local and international markets but are limited in quantity, making up about four percent of national production (Taffesse, Dorosh and Gemessa, 2012).

Although they comprise a small share of the national agricultural picture, commercial farms account for large shares of specific crops, such as coffee (19.1%), fruit (19.4 percent), vegetables (23.7%), sugarcane (78.1%) and sesame (42.6%) (Taffesse, Dorosh and Gemessa, 2012). Commercial farms more commonly utilize mechanization, irrigation and external inputs, whereas these technologies are less common on smallholder farms. Yields can be as much as three times higher as a result (Taffesse, Dorosh and Gemessa, 2012).

Over the last decade, steady and significant gains have been made in average yield per hectare in teff and maize, on the national, regional and zonal levels (see Chart 2.1). However, that data is questionable and highly politicized; Jerven's (2013) research on the quality of statistical data in Africa suggests data quality issues are common, and examples of its problematic nature are discussed throughout this work. For example, during the 2007/08 season a higher yielding variety of taro was introduced, yet no increase was recorded in the years that followed.

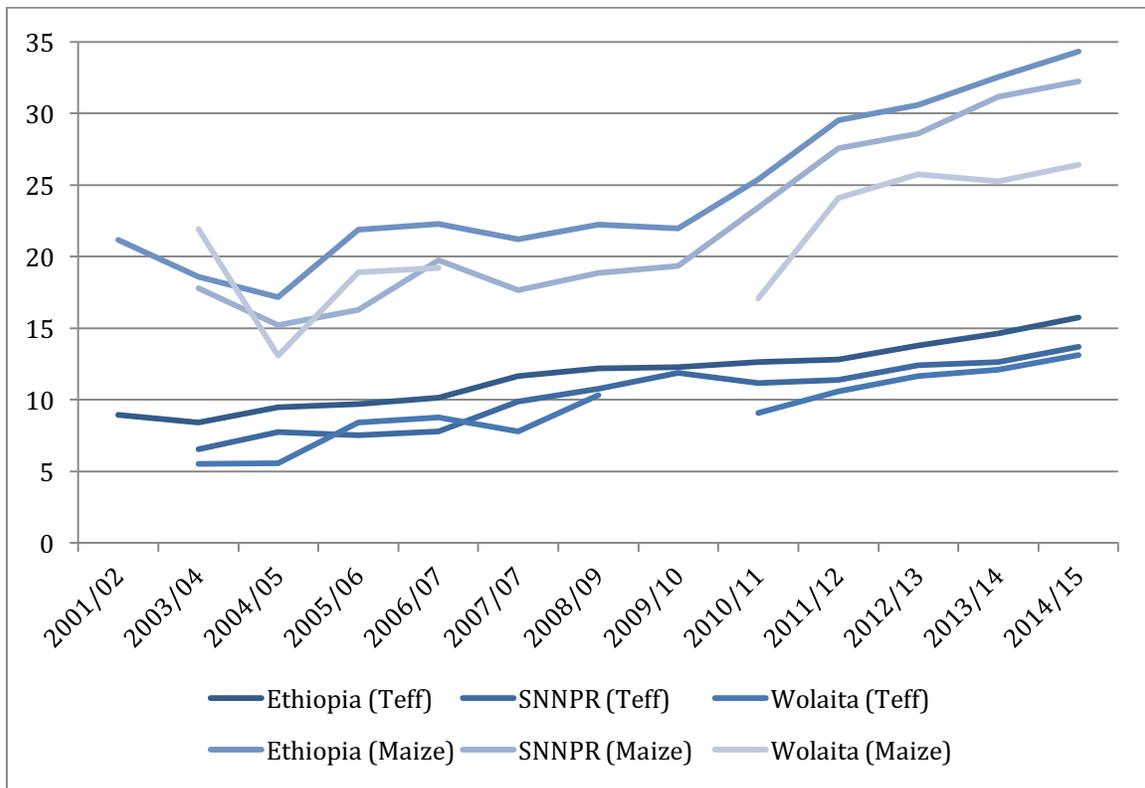


Figure 2.1 Productivity (100 kg units) per Hectare of Teff and Maize

Source: Central Statistics Agency, 2001-2015.

In addition, the CSA data on sweet potato for SNNPR from 2007 to 2011 are stable, but during this time sweet potato virus disease infection was extremely high and was affecting roots, weight and cuttings (Tefera, Handoro and Gemu, 2013). Furthermore, in the 2012/13 planting season the yields per hectare of taro and sweet potato, two crops of primary importance in southern Ethiopia, tripled, according to governmental data (in Wolaita Zone taro production rose from eighty six *quintal* per hectare to 327, and sweet potato rose from 106 *quintal* to 241 and then to 364 in the two following seasons). According to the Head of Agricultural Statistics at the Central Statistics Agency of Ethiopia, the reported improvements were the result of changes in methods for calculating yields in the annual surveys, not necessarily actual changes (Personal Communication 3 April 2016). Yield data is political and politicized. The trends in Figure

2.1 are government data, which should be viewed as important components of a governmental narrative of growth and progression toward the government-mandated targets as much as they are reflections of actual agricultural output. Development narratives from the Government of Ethiopia, as are all narratives, are shaped by the inclusion and exclusion of information, the selection of metrics and the interpretation of the data (Cochrane and Skjerdal, 2015).

These are, however, averages. As Scott described, the “farmer rarely experiences an average crop, an average rainfall, or an average price for his crops” (1998: 46). Average yield per hectare does not highlight localized crop failures, due to unpredictable rainfall or disease. Nor do average yields result in improved or equitable access. For example, Sen (1981) found that in the 1973/74 famine there were limited food shortages, but significant shortages of purchasing power. Similarly, during the 1982-1984 famine period, national yields were stable, with regional spikes of prices (de Waal, 1997). As will be explored in this dissertation, average agricultural yields of smallholder farmers can increase while food security remains chronic due to poverty, declining land holding size and increasing inequality. These changes result in increased yields for the relatively better off smallholder farmers and increased vulnerability, poverty and food insecurity for the relatively poorer and landless households.

Being a country heavily dependent upon agriculture, climate change is considered a significant threat to the development of the country. Ethiopia has been ranked tenth out of 230 nations in terms of its vulnerability to climate change (ACCRA, 2011; CGD, 2014). The changes in rainfall, temperature and weather variability have already begun to negatively affect lives and livelihoods in parts of Ethiopia, and the projected changes are expected to continue, and worsen in impact due to the country’s limited capacity to adapt (Cochrane and Costolanski, 2013; Di Falco et al, 2011; Kassie et al, 2015; ND-GAIN, 2016; Wheeler and von Braun, 2013).

2.2 SNNPR

According to the 2007 national census, when Ethiopia's population was estimated to be slightly under 80 million, the most populous regions were Oromia, Amhara and SNNPR, accounting for four-fifths of the entire population (CSA, 2007). The research sites of this study are located in SNNPR (see Figure 2.2), which has the highest rural population density in the country. This population density is particularly high in eastern and central SNNPR (see Figure 2.3), and all of the rural districts with a population density at or above five hundred persons per square kilometer are located in SNNPR (CSA, 2007).³ In addition to the pressures discussed above, this region encounters irregular rainfall patterns, lacks adequate infrastructure and is affected by crop disease and pests. Together, these factors result in SNNPR experiencing high levels of food insecurity. For example, more than half (55%) of the districts are reliant upon the Productive Safety Net Program for their basic needs to be met (FEWS NET, 2012b).

³ The districts per square kilometer are: Wenago 1121, Damot Gale 746, Aleta Wendo 705, Yirgachefe 677, Sodo Zuria 638, Kacha Bira 637, Angacha 624, Dara 633, Kedida Gamela 594, Shebedino 592, Boloso Sore 583 and Awasa 565 (Adugna, 2014). All of these districts are located within SNNPR.

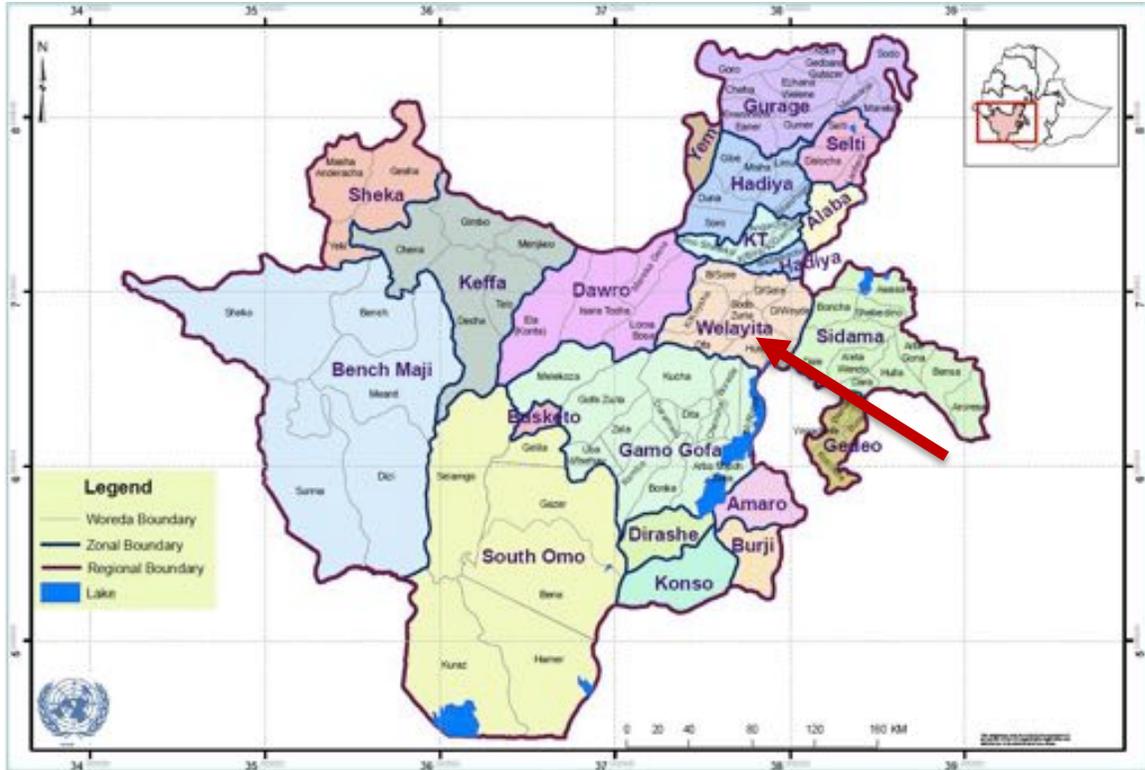


Figure 2.2 Administrative Zones of SNNPR (Wolaita Zone identified)

Source: UN OCHA (cited in Adugna, 2014)

Emergency situations can result from consecutive seasons of low agricultural production, as happened in 2011 and 2012, largely due to low levels and irregular patterns of rainfall (FEWS NET, 2012b). Periods of crises can result in 150 percent increases in admissions of malnourished children, complete loss of long-cycle crops (maize and sorghum), and up to 400 percent price increases of staple crops, such as maize (FEWS NET, 2011d). The Productive Safety Net Program operates when and where needed; in 2012 it operated in seventy eight districts, more than half the total districts in SNNPR⁴ (FEWS NET, 2012b) and supported more than three hundred thousand beneficiaries in SNNPR (FEWS NET, 2012a).

⁴ As of August 2014 there were 158 districts in SNNPR. Those districts exist within 19 Zones, however four of the districts are considered Special Districts, which are not included in the list of 158 and function administratively as Zones.

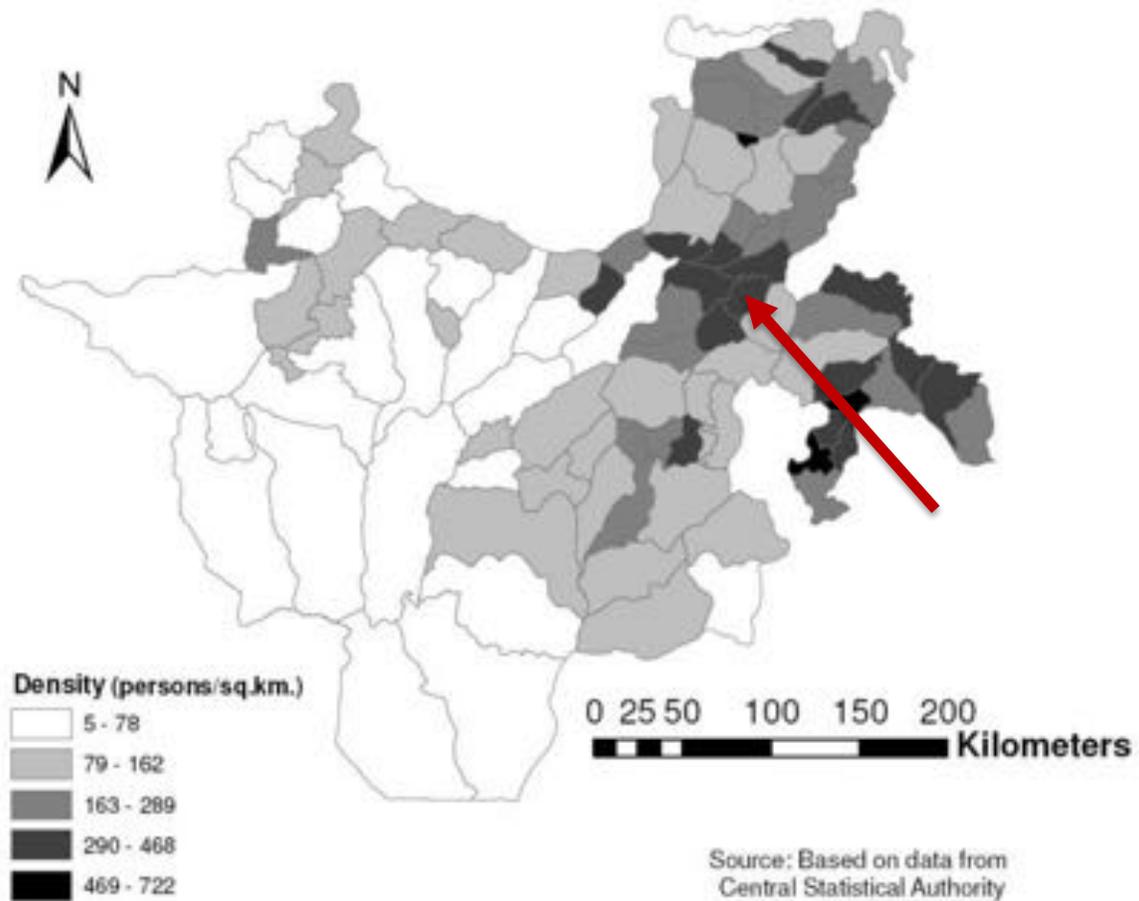


Figure 2.3 Population Density by District, SNNPR (Damot Gale District identified)

Source: Adugna, 2014

The food security situation within SNNPR is complex and generalizations cannot be made about all districts. In the western parts of the region, food security is stronger, due to relatively consistent rainfall (FEWS NET, 2013), while the central and eastern areas of the region experience moderate food insecurity that can fluctuate from minimal stress to generalized crises (FEWS NET 2010; 2012a; 2012b; 2014). In addition to annual

fluctuations, food security is seasonal, resulting in food insecurity existing for specific months of each year, in addition to the significant portion of the population in SNNPR that is chronically food insecure (FEWS NET, 2011b). Root crops are of primary importance to the agricultural system in SNNPR, and as such water stress – too little, too much or at the wrong time – can significantly impact yields. Sweet potato is notable in this regard because it is an important crop for poorer households to bridge the food gap that typically occurs from April to June.

Livelihoods in the south and southwest of Ethiopia tend to depend on a combination of crop cultivation and livestock husbandry. The traditional crops include enset, maize, teff, barley, sweet potato and taro. Root crops form the basis of the agricultural complex in southern Ethiopia, with enset having important socio-cultural value as well as an important role in assuring food security in the lean season. All the root crops (enset, sweet potato and taro) are high yielding per hectare, when compared to cereals. Teff is also notable in Ethiopia; it is the most important and valuable cereal, and also stores well and provides good fodder for livestock (McCann, 1995). A large number of fruits are grown, such as avocado, banana, orange and papaya, with cash crops of coffee, khat, bamboo and eucalyptus (Tesfaye, 2008). Livestock include cattle, sheep, goats, horses, donkeys and chickens. Animal products are important as the enset-based diet is low in protein. At the same time, enset cultivation requires significant amounts of fertilizer, which is provided by the animals (Tesfaye, 2008).

Agriculture

Based upon many of the newly developed agricultural policies, strategies, plans and agencies of the Government of Ethiopia (GoE), it might be assumed that the push for increased inputs in the agricultural sector is relatively new, and an action of the current government. It is not. In fact, inputs have been distributed in rural parts of Ethiopia, including the research areas, dating back to the early 1970s (Rahmato, 2007).

Despite the long-term advocacy by the government for farmers to utilize fertilizer, amongst other inputs (e.g. pesticides and improved seeds), the uptake has been moderate. Amongst the range of innovations provided to farmers, including the above agricultural inputs, as well as new planting methods and credit services, fertilizer uptake is arguably the greatest success, in terms of farmer adoption (Taffesse, Dorosh and Gemessa, 2012). However, according to national data only thirty two to thirty nine percent of smallholder farmers use fertilizers (Spielman, Mekonnen and Alemu, 2012). To varying degrees, all of these services have been promoted for decades (Rahmato, 2007) and international research projects seeking to understand their poor levels of adoption success have been conducted since at least the 1980s (Kebede, Gunjal and Coffin, 1990). Given almost fifty years of advocacy, this is a dismal failure. One anecdote about fertilizer use by smallholder farmers, provided by a faculty of a local university, is that even when they are highly encouraged (i.e. forced) to buy it by governmental workers, they re-sell it on the market for a reduced price as they cannot afford it (Personal Communication 4 April 2015).

One of the reasons farmers are reluctant to take up these innovations is that once they begin relying upon inputs, they want to be sure that such inputs will be available year-to-year; some studies indicate that the percentage of households receiving full packages of fertilizer and seed can be as low as twenty two percent (Tadesse, 2014). Concerns about availability and access are supported by data on fertilizer distribution in Wolaita Zone in the 1970s, which indicates that the region experienced significant fluctuations in availability, shown in Figure 2.4. Furthermore, the variability and uncertainty in the input supply continued into the 2000s (Rahmato, 2007: 15) and 2010s (Figures 2.4 and 2.5). Additionally, fertilizer is not the primary determining factor of yields, and thus the high costs may not be the best use of limited funds.

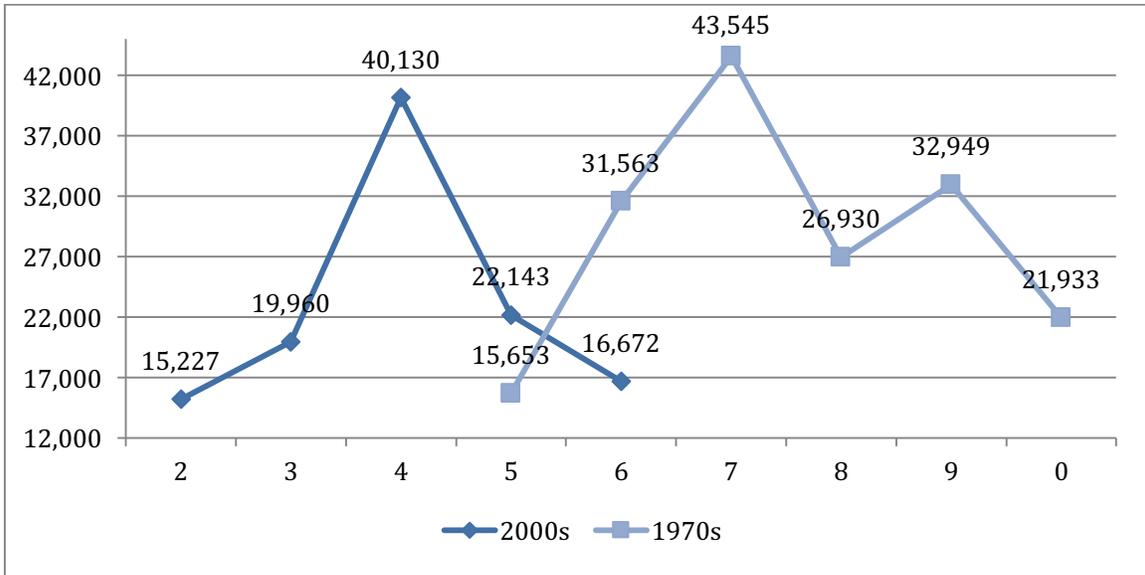


Figure 2.4 Fertilizer Distribution in Wolaita Zone in the 1970s and 2000s, by 100 kg bags (x axis are years of the respective decades; e.g. 2 is 2002)

Source: Rahmato, 2007

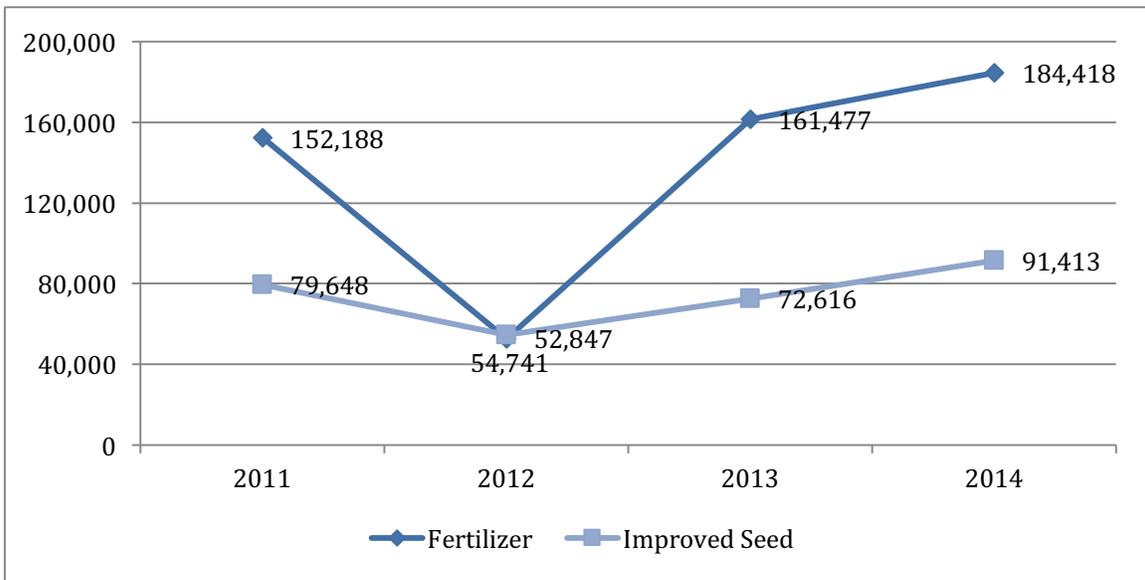


Figure 2.5 Fertilizer and Improved Seed Distribution in Wolaita Zone (2010s)

Source: Wolaita Zone Agricultural Office on May 14th, 2015

For farmers investing in fertilizer, actualized impact upon yield is an important indicator of the value of that investment, however fertilizer distribution data shown in Figure 2.4 and yield data shown in Figure 2.6 during the 1970s highlights that a 101 percent increase in fertilizer distribution from 73/74 to 74/75 was associated with a 26.5 percent yield increase for maize and a 12.5 percent loss in teff yields (Rahmato, 2007). From 2004/05 to 2006/07, fertilizer distribution increased by 178 percent (as shown in Figure 2.4), while maize production increased by forty seven percent and teff production increased by fifty seven percent (Central Statistics Agency 2005-2007). When fertilizer distribution dropped by 188 percent from 2011 to 2012 season, and then increased by 206 percent from 2012 to 2013 (Figure 2.5), maize and teff production, according to governmental data, remained relatively stable, as shown in Figure 2.6 (Central Statistics Agency 2012-2015).

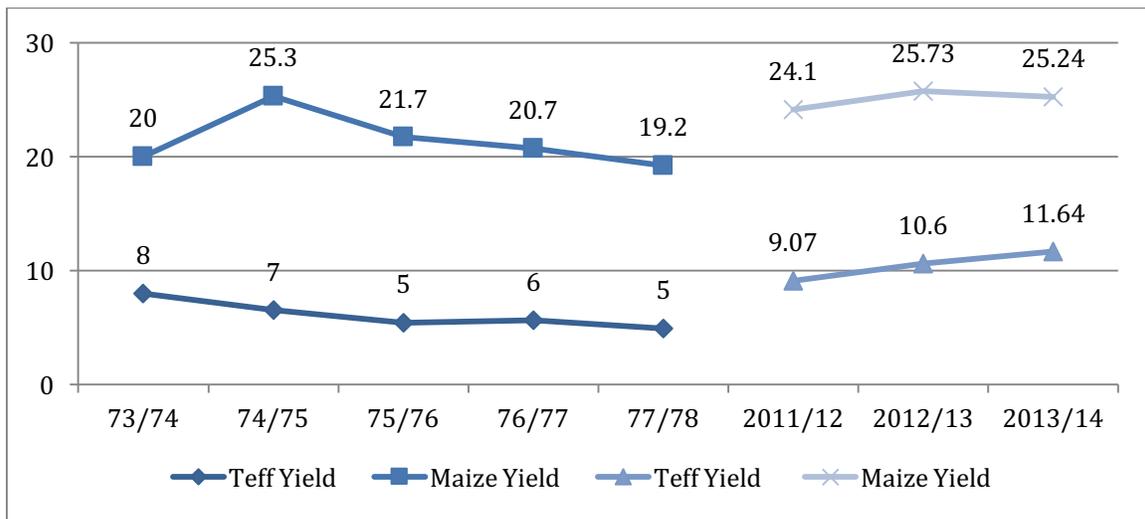


Figure 2.6 Average Teff and Maize Yields in Wolaita Zone in the 1970s and 2010s, by 100 kg unit per hectare⁵

Source: Rahmato, 2007; Central Statistics Agency 2012-2014

⁵ Fertilizer distribution is listed as specific years (e.g. 2011) as it relates to the time when distributions take place before planting, which occur within a single Gregorian calendar year. Yield data from the main growing season, however, is presented as covering two Gregorian calendar years (e.g. 2011/12) as the harvesting season extends into the beginning of the year that follows it. This is also the reporting approach taken by the Central Statistics Agency of the Government of Ethiopia.

These findings suggest that inputs are a relatively poor indicator of agricultural yields. In addition to the variability of provision and the cost of purchasing inputs, there appears to be a weak correlation of fertilizer input with improved yields, which might explain the apparent low interest on the part of farmers. As will be explored in greater detail below, fifty years of agricultural extension activity might have been much more effectively channeled into low-cost, locally-managed irrigation systems.

Figure 2.6, on teff and maize yield in Wolaita, is noteworthy because the year of greatest production was the same year as the severe famine in Wollo (1974), which may have taken the lives of up to 300,000 people (Graham, Rashid and Malek, 2012). The relative isolation of famine-affected areas at the time highlights the political and market-based drivers of famine (Sen and Dreze, 1990; 1999). Wolaita has also experienced its share of environmental stresses, including droughts that have resulted in famine. The 1984/85 famine that took the lives of between 400,000 and 1,200,000 Ethiopians greatly affected Wolaita (de Waal, 1991; Wolde Giorgis, 1989). Shortly thereafter, in 1987/88, a localized food insecurity situation emerged due to enset disease combined with insufficient rains (Rahmato, 2007). Serious food insecurity situations occurred in 1990/91, 1994/95, 1998/99, 2000 and 2003. The common causes were irregular and insufficient rainfall as well as crop disease (Rahmato, 2007).

Planted crops have significantly different yield per hectare, and can be grouped into three categories: (1) 5 to 11 *quantal* per hectare for lentils: chick pea, haricot bean, peas and faba bean, (2) 7.5 to 14.6 *quantal* per hectare for cereals: maize, sorghum, teff, wheat and barley, and (3) 25 to 106 *quantal* per hectare for root crops: enset, sweet potato and taro (Central Statistics Agency, 2012). While cereals are an important cash crop, and are closely monitored by the government, the most important crops in SNNPR are root crops, which play a crucial role in regional food security, with enset being one of the most important (Olango et al, 2014).

Enset is a crop native to Ethiopia that is grown throughout the south of the country (see Figure 2.7). Enset was domesticated thousands of years ago and its use is one of few

examples of long-term sustainable agricultural systems in Africa (Brandt et al, 1997). Enset cultivation is considered the most sustainable indigenous system for the highly populated region where it is grown (Tsegaye and Struik, 2002). This historically sustainable, and currently most appropriate, system is largely controlled by women, who manage cultivation, harvesting and processing (Tsegaye and Struik, 2002). Although the plant produces fruit and seeds, they are inedible; what is consumed is the underground stem and the bases of the leaf sheaths (Tesfaye, 2008). In addition to food, enset is also an important source for livestock feed. According to farmers, enset is “the enemy of hunger” (Tsegaye and Struik, 2002: 292).

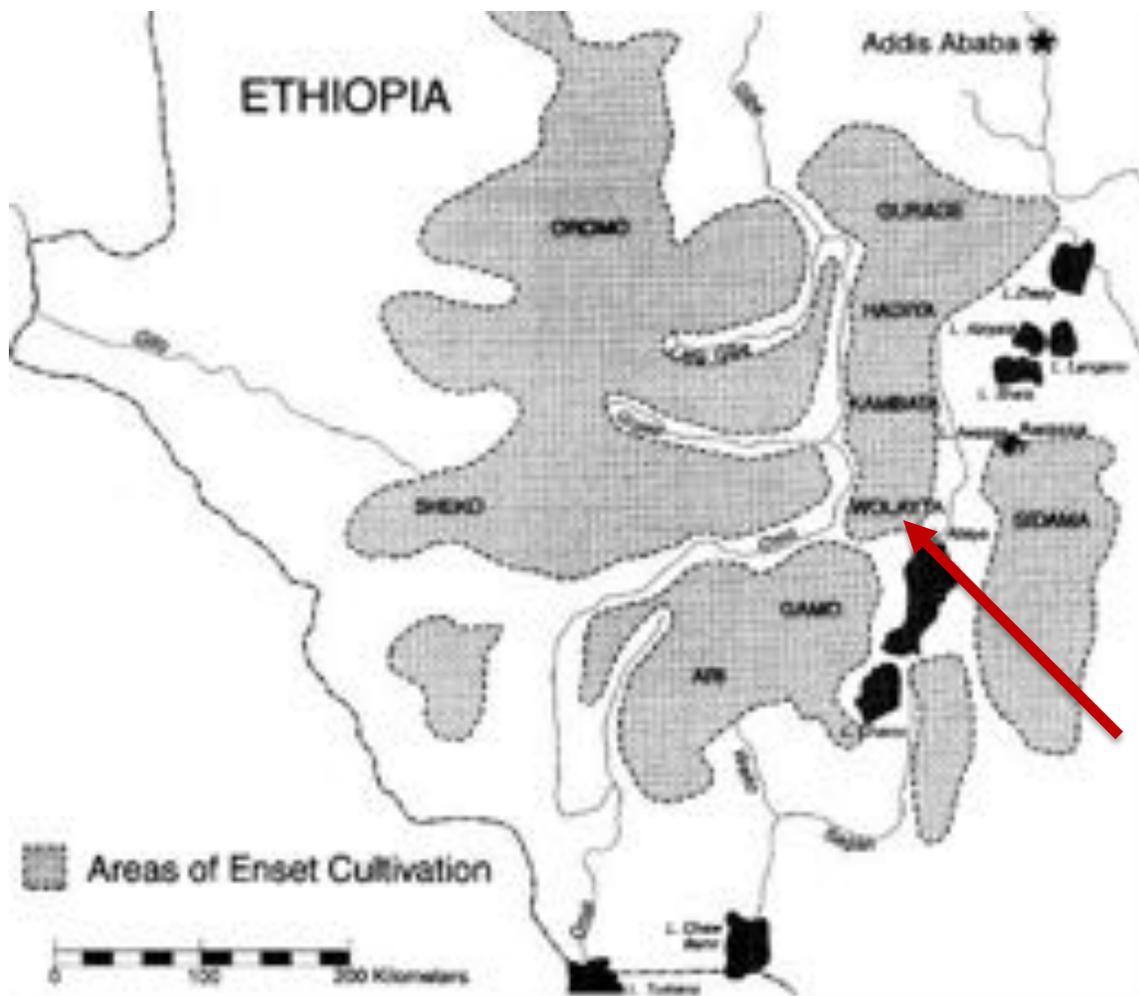


Figure 2.7 Enset Cultivation and Ethnicities (Wolaita identified)

Source: Brandt et al, 1997: 4

Typically, enset is planted around other crops, resulting not only in a food crop of its own but also an effective means of supporting the prevention of erosion, enhancement of water retention and improvement of soil quality. Enset is often inter-cropped with perennial tree species, such as coffee, avocado and guava, as well as annual crops, such as maize, kale and yams (Olango et al, 2014). Local farmers have immense knowledge about enset varieties, which number upwards of fifty, and the different uses for them. Diversity is valued and households maintain at least two varieties, with at least twenty five varieties maintained in Wolaita (Tsegaye and Struik, 2002). Some of the reasons for keeping multiple varieties include: meeting different needs, providing flexibility, and enhancing the yield (Tesfaye, 2008). Enset is affected by disease and pests, and traditional practices, such as intercropping, were developed to prevent and control the spread of these problems (Muluaem and Walle, 2014). Enset also has significant cultural importance in many parts of south and southwestern Ethiopia, and is used as an expression of identity as well as status. For this reason it is said that ‘we were born and grew up on enset, we are the people of enset’ (Olango et al, 2014:12).

Another root crop common in SNNPR is sweet potato, which is sensitive to insufficient or too much moisture (FEWS NET, 2011a). Even a slight reduction of potato production can result in a drastic deterioration of food security because sweet potato is the primary crop that bridges the food gap for the poor and very poor households between April and June (FEWS NET, 2011d). Low availability of cuttings for planting sweet potato can have long-term impacts. For example, the poor rains of 2008 continued to negatively affect sweet potato cutting availability in 2012 (FEWS NET, 2012b). When important transition crops, such as sweet potato, are lacking, consumption substitution may take place with enset. However, enset requires five years to mature, and its overconsumption may allow a short-term nutritional gain while creating long-term vulnerabilities (FEWS NET, 2012b). Taro is a third crucial root crop common in the south and southwest of Ethiopia. This crop was introduced at least two thousand years ago to Africa after having been domesticated in Asia (Fujimoto, 2009; Muluaem, WeldeMichael and Belachew, 2013).

Taro is cultivated for its starchy roots, and like enset, farmers maintain its diversity for specific purposes, having multiple varieties on their farms at one time.

2.3 WOLAITA⁶

As a socio-cultural, linguistic and identity-based area, Wolaita has existed for as long as records of the area exist (Pankhurst, 1997). However, the administrative and political classifications have not been stable. During the time of Haile Salessie's Imperial government (1930-1974) the area was called Wollamo, and was located within Sidamo Province, which covered a territory similar to the current Wolaita Zone. During the early years of the Derg government (1974-1991)⁷ there was no change. However, a restructuring and administrative reorganizing of the country in the late 1980s resulted in the merging of districts, creating the North Omo Region. When the Derg government was overthrown and the Ethiopian Peoples' Revolutionary Democratic Front (EPRDF) regime began, Wolaita did not benefit from the new powers of self-determination given to the regional states because it was embedded within the North Omo Region.

Although the desire for self-determination and administrative independence was not eliminated, that sentiment did not result in political action until the 1990s. The spark of the change was driven by language, with Wolaita language (Amharic: *Wolaitenya*) being intimately tied to ethnic identity. The government planned to merge three regional languages, with Wolaita being one of them, into one, which would be used as a language of instruction in schools. The people of Wolaita started a struggle to regain their political and administrative control, which included violent protests. While protest is not unheard of in rural areas, the governmental response was somewhat uncommon: after years of

⁶ "Wolaita" is spelled in a number of ways (e.g. Wolayta, Wollaita) and was previously named Wollamo, Wolaita is used as this is the version used by the Zonal Administration.

⁷ The leader of the Derg, Mengistu Haile Mariam, officially abolished the Derg government in 1987 and established the People's Democratic Public of Ethiopia, which he led until his overthrow in 1991. Academics and non-academics tend to label this entire period (1974-1991) as being ruled by the Derg government.

activism the government responded to the demands of the people of Wolaita. In 2000, Wolaita Zone became its own administrative zone within SNNPR. In 2005/6 some of the districts within the zone were divided, expanding the seven districts that had existed since the 1960s to twelve districts and three administrative towns. Within each district and administrative town there are sub-districts. As of 2014, there were a total of 352 sub-districts, 56 (16%) of which are considered urban sub-districts (see Figure 2.8).



Figure 2.8 Administrative Districts of Wolaita Zone (Damot Gale District identified)

Source: Wolaita Zonal Administration on February 28th, 2015. The Administration was not able to provide an electronic version.

Wolaita was one of the predominant kingdoms ruling in southern Ethiopia before the expansionist Ethiopian state overtook its territory. Wolaita strongly resisted incorporation, but was defeated by Menelik II in 1894 (Aalen, 2011). Defiance is a tradition that has continued in different forms over the decades, as described above. Although Menelik II and the rulers that followed attempted to dismantle the traditional power structures that enabled a strong resistance to exist, it also incorporated Wolaita elites into its system, and thus offered a degree of continuity for powerful lineages and families within Wolaita until the Derg land reform of 1975 (Chinigo, 2015).

The ethnicity of the zone is almost entirely Wolaita; according to the 2007 census the figure was over ninety six percent. Ethnic homogeneity is a product of the 2000 political restructuring along ethnic lines, thus general linguistic, cultural, and ethnic homogeneity is expected. The SNNPR region, however, is uniquely home to a diversity of fifty six ethnicities. While Wolaita Zone is ethnically homogenous its residents interact with a greater diversity of ethnicities when compared to other regional states wherein ethnic homogeneity exists throughout. While Christianity is the dominant religion, there are two major sects, which can result in significant tension; fifty five percent are Protestant and forty percent Ethiopian Orthodox, while the remaining five percent are Muslim (CSA, 2007). These dynamics differ significantly from national religious affiliation, being 43.5 percent Ethiopian Orthodox, 33.9 percent Muslim, 18.6 percent Protestant, 2.6 percent 'traditional', 0.7 percent Catholic and 0.6 percent 'others' (CSA, 2007). As is common in Ethiopia, religious adherence is important in daily life in Wolaita, and it influences who one interacts with and how.

Wolaita zone ranges from 500 to 3,000 meters above sea level and is classified into three agroecological zones: high-altitude (*dega*), mid-altitude (*wayna dega*) and low-altitude (*kola*). The majority of the land, sixty percent, is located in mid-altitude areas, with a small percentage of high altitude areas (Rahmato, 2007). The mid-altitude and high-altitude areas are where three-quarters of the population live, and account for four-fifths of the food crops grown in Wolaita (Rahmato, 2007). The areas of lower elevation, accounting for a third of the land area in Wolaita, such as parts of Humbo and Diguna Fango districts, do not practice root crop agriculture and their unique contexts will not be

explored in this research. Root crops are not grown in the low elevation areas, where different cash crops, such as cotton and tobacco, are grown. Settlement (and in some instances re-settlement) into low altitude areas has been slow due to the presence of animal diseases (e.g. trypanosomiasis) not found in the mid- and high-altitudes, and higher levels of malaria. Efforts to control disease in recent decades have facilitated new flows of migration and resettlement (Rahmato, 2007).

Historical population data on Wolaita Zone is unavailable until the 1960s, around which time the administration began to recognize over-population as a challenge (Rahmato, 2007). At the time, the population was estimated to be 600,000 people (CSO, 1966; cited in Rahmato, 2007). By the 1994 national census the population had almost doubled to 1.13 million (CSA, 1996), in the 2007 census it had risen to 1.5 million (CSA, 2007) and by 2014 it had risen to 1.9 million.⁸ The population is almost entirely rural and not experiencing urbanization at the same rate as other parts of the country. In 2005 only eight percent of the population was urban, a figure that had only risen one percent since 1994; in contrast the national urban population was fourteen percent in 1994 and sixteen percent in 2005 (CSA, 2011; Rahmato, 2007). In the Imperial times of the 1960s, when population pressure was identified as a problem by governmental officials, the proposed solution was resettlement, including to low elevation areas within Wolaita Zone, which was done at the time (Rahmato, 2007), an approach advocated by both the Derg and EPRDF governments.

International non-governmental organizations (INGOs) began to have a more significant presence in Wolaita in the 1980s, previous to which a limited amount of services were offered by Catholic and Protestant churches (Rahmato, 2007). The expansion of INGOs into Wolaita aligns with the rapid increase of INGOs globally and the funding they received during this period.⁹ The entry of INGOs to Wolaita also aligned with the international media attention that brought the 1984/85 famine in Ethiopia into the homes of people throughout the world. The Derg government, which ruled at this time, was suspicious of INGO activity and heavily regulated the location of programs and the

⁸ Based upon data from the Zonal Administration Office, provided on May 14th, 2015.

⁹ In 1970 INGOs received US\$ 860 million and 1980 INGO funding has rapidly risen to US\$ 2.3 billion (Riddell, 2007).

types of activities they engaged in. The control of INGOs changed in the 1990s under the early years of the EPRDF government, restricting their ability to operate in the country. The result of this was an expansion of community-based and national organizations, with which (or through which) international organizations continued to offer goods and services. However, the government has again become increasingly suspicious of INGO activity and introduced strict regulations in 2009.

In the traditional Wolaitan system, when a sufficient amount of land was available, households divided their land into sections: (1) *enset* around the home, (2) the *darkua* area with mixed root crops and non-root crops, (3) the *shoqa* field for cereals, and occasionally (4) an *outa* for trees and grass (Rahmato, 2007). The amount of land allocated to root and cereal crops still somewhat reflects these patterns, as shown in Figure 2.9 below. The utilization of space as designed in the traditional Wolaita system is remarkably similar to the models advocated in contemporary research about permaculture, which takes into account the distribution of organic material as well as required labor (e.g. Altieri, 1995; Holmgren, 2002; Mollison, 1991). However, this traditional system was disrupted by declining land size per capita as well as advocacy by the government to shift to cereal crops, which are primarily for market sale and export (Eyasu, 2000; 2002). Rahmato writes that the “strategy of changing the cropping system pursued by WADU [Wolaita Agricultural Development Unit] by encouraging a shift from emphasis on root crop cultivation to cereal cultivation was, under the prevailing circumstances, ill advised” (2007: 33).

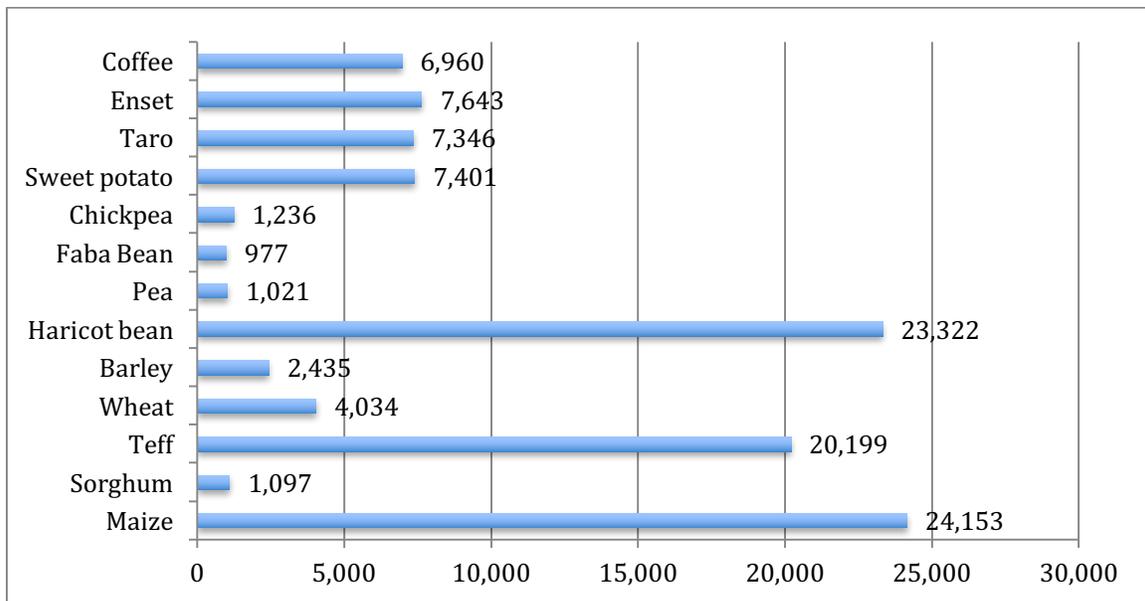


Figure 2.9 Land Allocation (ha) by Crop in Wolaita Zone (2011/12)

Source: CSA, 2012

While the shift of land use and crop choice negatively affected traditional agricultural systems, arguably the greatest change was that the required size of landholdings to implement this system no longer existed. Rahmato has described Wolaita as “a land of micro-holdings” wherein land “holdings have always been small relative to other parts of the country” but have “been growing smaller through the decades” (2007:3). Rahmato’s differentiation between ‘smallholder’ and ‘microholder’ is based on land size less than 0.5 of a hectare, a plot that, he argues, can no longer sustain those who farm it and who experience “collapse under even minimum pressure” (Rahmato, 2007: 10). The majority of smallholder farmers in Wolaita farm micro-plots, which is the result of decades of high population growth and land fragmentation.

Rahmato cites a report conducted in 1976 that found the average landholding size was 0.7 hectare. A survey Rahmato conducted in 1989 found that forty five percent of households had less than 0.5 of a hectare (Rahmato, 1992). In 2003, 53.3 percent farmed less than 0.5 ha, with only 4.4 percent farming more than two ha (CSA, 2003; cited in

Rahmato, 2007). In the 2012-13 season, 57.4 percent held less than 0.5 ha, and the average land holding in Wolaita Zone was 0.58 ha, with only 1.7 percent holding more than two ha (Central Statistics Agency, 2013). In 2015, the average land holding size in Damot Gale district (where this study took place) had fallen to 0.25 hectares.¹⁰

Cattle play an important role in plowing fields and providing manure, as well as meat and milk, from which products are derived and sold on the market, such as butter. Yet, plots have become too small, and the economic pressures too high, that maintaining cattle has become less viable. In 1976, fifty eight percent of households used oxen for cultivation, but by 2007 only nineteen percent owned two oxen and twenty five percent owned one (Rahmato, 2007). In addition, many families do not have transportation livestock, but these are essential for smallholder farmers to bring their goods to regional markets for sale. This transportation also enables individuals to buy goods at the district markets and return them to their communities for sale or trade. However, without transport livestock households rely upon traders for purchasing goods and selling yields. The Zonal Administration Office data on livestock populations (shown in Figure 2.10 below) is suggestive of error, as the variation of livestock populations in this time period is unlikely to increase this dramatically, particularly for cattle, but nonetheless indicates general livestock population trends. In this study, land fragmentation and the decline of communal grazing areas are suggested as contributing to a decrease of livestock holdings. However, the data in Table 2.10 shows increases. There are two potential explanations for this: the trend in Wolaita Zone differs from that of Damot Gale district, and the micro-trends do not appear at this level, or the data is inaccurate. My experience suggests the latter (similar challenges exist with agricultural data).

¹⁰ Data provided on 12 June 2015 by the Damot Gale District Agricultural Office, based upon 2015 data.

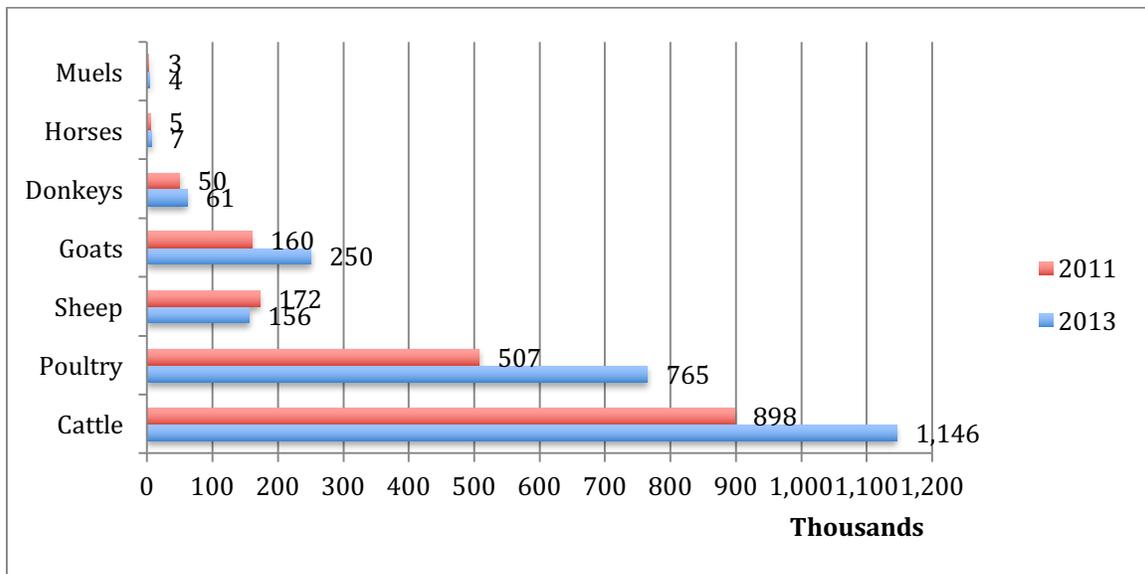


Figure 2.10 Livestock Populations in Wolaita Zone in 2011 and 2013

Source: Wolaita Zone Finance and Economic Development Department, 2012; 2015

In addition to the challenges of fragmentation of micro-plots, smallholder farmers are vulnerable to unpredictable rainfall – too much, too little, too early or too late - because only 0.4 percent of the land in Wolaita is irrigated (Rahmato, 2007). The result is greater demand from smaller plots, which has pushed farmers away from the “sound and sustainable” traditional practices of land use and crop choice, to those that provide the greatest benefit in the short term (Rahmato, 2007: 9). Rahmato concludes that agriculture in Wolaita “has exhausted its potential and is becoming increasingly unviable for the great majority” (2007: 17). The percentage of the population reliant upon food aid reflects these changes. In 1994, 17.8 percent of the population required food aid (CSA, 1996; Rahmato, 2007) and based upon available district level data, the percentage of the population enrolled in the Productive Safety Net Program, which serves rural food-

insecure households, ranged from fourteen to thirty one percent (Cochrane and Vercillo, 2017).¹¹

While the land situation is dismal, Rahmato's research indicates that root-crop based agriculture can provide sufficient yields for household consumption with plots ranging from 0.1 to 0.8 of a hectare (Rahmato, 1995). However, the potential for self-sufficiency using root crops must be considered in light of the decline of cattle holdings, which is an essential contributor of the manure fertilizer required by root crops. It must also be considered in light of the low protein, carbohydrate-based diets that result from the consumption primarily of these root crops, which can result in nutritional deficiencies. The figures from Rahmato are a potential based upon average output, but farmers rarely experience an average rainfall and average yield. A single year of poor yields can require several years of good or above-average yields to recover from asset loss (FEWS NET 2012b).

Rahmato (2007) appropriately draws attention to a segment of society in an even more difficult situation than those farming micro-plots of land: the landless. For this segment of the population, Rahmato states that almost no data is available, but he suggests that the proportion of the population may be as high as fifteen percent. The livelihood of the landless revolves around their labor; as farm laborers or as share-croppers – engaging in migration by necessity (Cochrane and Vercillo, 2017). Off-farm and non-farm activities that are commonly engaged in include: trading of small goods, unskilled wage labor, handicraft production, collection and sale of wood, charcoal or grass, as well as individual service provision, such as care work. One of the internal pressures keeping the population attached or semi-attached to Wolaita Zone is land inheritance (specifically land use inheritance), which is commonly sub-divided amongst numerous heirs. All land is owned by the government, and only recently have certifications affirming and protecting the right to use land been issued (discussed in Chapter 7). The land outlined in such certificates cannot be sold or transferred, and can only be inherited by direct descendants.

¹¹ Food aid, in the past and present, refers to food distributions in response to specific emergency needs. The PSNP provides regular, multi-year transfers to households for six-months of the year. In most regional states, the transfer is made in the form of cash payments, for which labor contributions are required (see Cochrane and Tamiru, 2016).

If the land is unused, it returns to the governmental land bank for redistribution. As a result, seasonal migration is common, but permanent migration is rare due to the expectation of inheriting land, while semi-permanent migration is done only by a portion of the household to ensure the land remains used and therefore retained by the family.

2.4 DAMOT GALE

The district within which the research sites were selected for this dissertation, Damot Gale (see Figure 2.11), has the second highest rural population density in the country: 746 persons per square kilometer (CSA, 2007). The district (*woreda*) of Damot Gale is broken down into thirty four sub-districts (*kebeles*), three of which are considered urban that are all located near to Boditi Town Administration.¹² However, despite three sub-districts being classified as urban, the entire population of Damot Gale is considered to be rural by the national definition.¹³

Based on information from the Zonal Administration Office, fifty seven percent of the land in Damot Gale district is cultivated, eleven percent is used for grazing, nineteen percent covered by forest and bush and the remaining three percent is covered by water or residential areas. While a third of Wolaita Zone is low altitude, wherein significantly different agricultural systems are practiced, Damot Gale is a district that is representative of the root crop agricultural system, with only a small fraction of low altitude land. In Damot Gale, sixty two percent of the district is located in the mid-altitude (*woyna dega*) agroecological zone, thirty three percent in the high-altitude (*dega*) zone and five percent

¹² Sub-districts are divided by population (as opposed to geographical area) and new sub-districts are introduced regularly. For example, in 2012 Damot Gale had thirty-one sub-districts, and in 2014 that has risen to thirty-four. The geographical area of districts ranges significantly. In Damot Gale, Humbo sub-district covered 859 km² while Damot Pulasa covered only 165 km², and the Administrative Towns cover smaller areas, such as Boditi covering only 20 km². This data was provided by the Wolaita Zone Administrative Office on May 14th, 2015.

¹³ The classification of sub-districts as urban appears to be related to administrative classification and nearness to Town Administrations, rather than having a certain percentage of the population considered urban according to the national definition.

in the low-altitude (*kola*) zone. The sub-district is home to the highest point in the Zone, Damot Mountain, at 2,958 meters above sea level. The mean annual rainfall in Damot Gale district ranges from 1,000 to 1,400 mm, and the mean annual temperature from 12.6 to 22.5 degrees Celsius.¹⁴

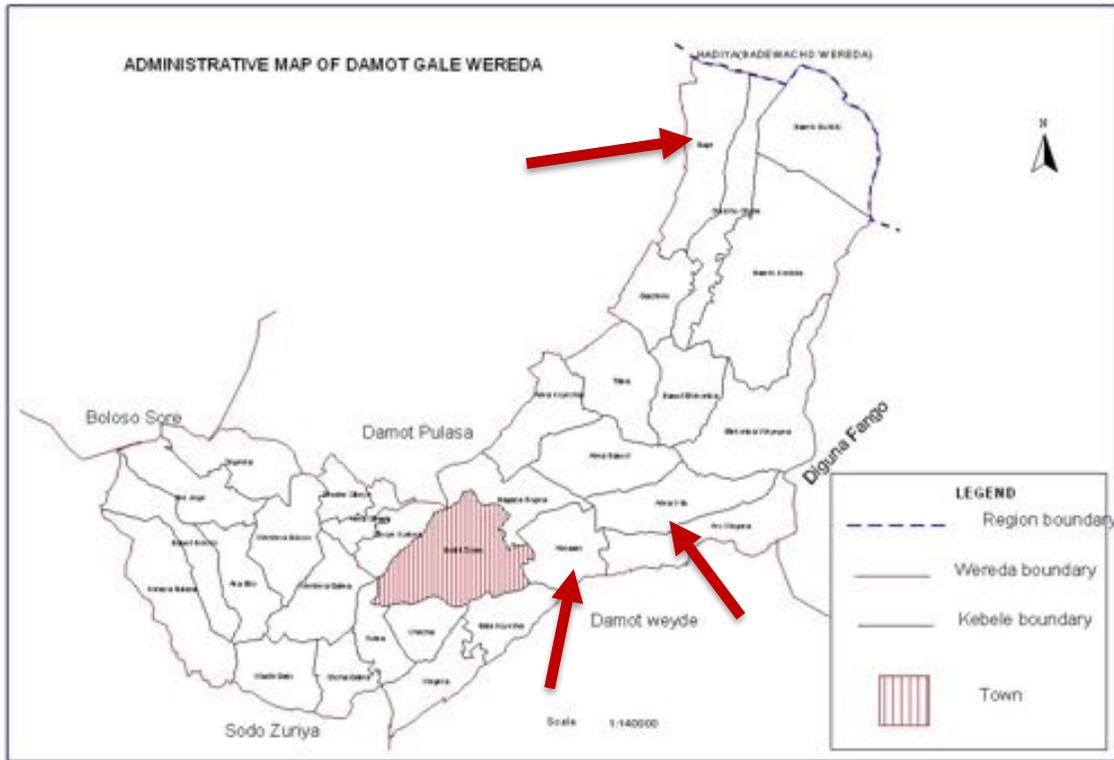


Figure 2.11 Administrative sub-Districts of Wolaita Zone (three study kebeles identified: Adeaaro, Adea Ofa and Buge)

Source: Wolaita Zonal Administration on May 14th, 2015

Based on 2014 data provided by the Zonal Administration, there were 149,823 people in Damot Gale, living in 29,115 households, making the average household size 5.2 persons. Of that population, 38,258 (26%) are enrolled in school; and of the school enrolled

¹⁴ This data was provided by the Zonal Administrative Office on May 14th, 2015.

children 25,092 (66%) are in grades 1-4, 11,591 (30%) in grades 5-8, 1,575 (4%) in grades 9-10, and 0 in grades 11-12.¹⁵ As these figures indicate, rates of enrolment significantly decline with age. One of the primary reasons for this decline is access. In Damot Gale there are two schools offering grades 1-4, thirty four schools offering grades 1-8, one school offering grades 9-10 and no schools offering grades 11-12. Of note: according to governmental data, there is only a gender disparity of a few percentage points throughout all grade levels. However, enrollment data reflects the existing options; although some students from Damot Gale may attend secondary school in other sub-districts, which does not appear in the currently available data. Opportunities to attend school, although they remain limited, are largely a new experience. In 1962 there was only one public school and one non-governmental school serving the entire Wolaita Zone (Rahmato, 2007).

Accessibility to these schools is greatly influenced by distance and transportation infrastructure. As a result, there are significant barriers for those living in sub-districts without asphalt road access to attend secondary school. As of 2013, there were only twenty seven kilometers of asphalt road and twenty six kilometers of gravel road in Damot Gale district, and the Zonal Administration reports that there is no public transportation coverage from Damot Gale to the Zonal Capital, Sodo.¹⁶ However, private transportation is present, largely in the form of motorbikes on dirt roads and minibuses on asphalt.

Wolaita Zone has two hospitals, seventy one health centers and 348 health posts.¹⁷

Within Damot Gale there are seven health centers and thirty one health posts. Despite these facilities, Damot Gale is home to 0 physicians, 125 nurses (1:1,199), 18 pharmacists (1:8,324), 19 laboratory technicians (1:7,885) and 64 health extension workers (1:2,341).¹⁸

¹⁵ This data was provided by the Zonal Administrative Office on May 14th, 2015. Its validity is highly questionable. The same administration office provided three different data sets on enrollment, which significantly conflicted with each other (see Sandefur and Glassman (2015), Carletto, Jolliffe and Banerjee, 2015, and Jerven (2013) for more detailed explorations of the problems of statistical data in developing countries). As a result, these figures should be understood as indicators of general trends, rather than exact data.

¹⁶ This data was provided by the Zonal Administrative Office on May 14th, 2015.

¹⁷ Non-governmental data from Management Sciences for Health Ethiopia, an organization I was a consultant for from 2013 to 2015, supports the government data for health posts and hospitals, however lists only seventeen health centers.

¹⁸ This data was provided by the Zonal Administrative Office on May 14th, 2015.

Throughout the entire district of Damot Gale there are only eight pharmacies. However, the level of current healthcare service coverage requires contextualization: in 1962 there was only one hospital and one charitable clinic in the entire Zone of Wolaita (Rahmato, 2007). While the rapid expansion of health posts, including in rural areas, is impressive (see Taddesse, Jamieson and Cochrane, 2015) the services offered by health posts are limited because they are staffed by nurses or health extension workers and have to cover large geographical areas. As a result, any serious medical situation requires travel to a health center or hospital. For those living near to asphalt roads, this poses fewer challenges. However, individuals living in rural areas may not have access to vehicles, and have limited network coverage to call for vehicles, resulting in extremely high costs for emergency transportation. To put those costs into context, the cost of emergency transportation to towns from rural areas can be the equivalent to 200 kilograms of maize. Considering families in Damot Gale have, on average, 0.25 hectares of land for cultivation, these costs consume a significant portion of their income and, for many, pose insurmountable barriers for accessing healthcare services.

The important role that transportation infrastructure plays for rural residents is not a recent discovery in the development sphere. Weber's (1976) history of the modernization of France outlines the changes that occurred in the 1800s and early 1900s and almost all of the socio-cultural, political and economic changes were founded upon transportation infrastructure. Changes in communication, migration, taxation, military, and industry would not have occurred without transportation infrastructure. Weber states, "until roads spread, many rural communities remained imprisoned in semi-isolation, [and its members] limited participants in the economy and of the nation" (1976: 195). In rural Ethiopian contexts, like Damot Gale, we can also add: limited access to education beyond primary school, limited access to healthcare except basic services and almost no access to improved services, such as safe drinking water, or access to infrastructure, such as for irrigation.

Agricultural support services have rapidly expanded in recent decades, but remain few and far between. For example, Damot Gale is home to almost 150,000 people and each sub-district has one Farmer Training Center (FTC), that collectively have trained under

2,000 people (less than 2% of the population). In many communities in Damot Gale the FTCs have limited functionality. One of the FTCs in the communities within which this research took place was rarely used because the agricultural extension worker lived in the town and rarely visited the area covered by this FTC. According to the job requirements, the agricultural worker is supposed to live within the community, but this is not always the case.

The entire Wolaita Zone only has one Agricultural Research Center, based in Areka, located forty to fifty kilometers from the research areas. In addition, there is only one animal health laboratory for the entire Damot Gale district and it has no livestock breeding centers. The Zonal Administration data suggests that the 110 agricultural extension workers employed in Damot Gale have complete coverage of all households. While this may technically be the case, these 110 agricultural extension workers cover a geographical area of 235.5 km² and provide services to a large population. In addition, few live in close proximity to FTCs and due to the time-sensitive nature of plowing, planting and harvesting, it is not practically possible for extension workers to reach farmers when they are in need of extension support. Depending on which figures are used from the Zonal Administration, the ratio of agricultural extension workers to households ranges from 1:265 to 1:348. Animal health extension services have an even larger area to cover, with the entire district of Damot Gale having seven veterinary technicians and one veterinarian, who provide service to large livestock populations, including 93,770 cattle 60,018 goats and 115,970 chickens. Even if livestock figures are inflated, without livestock health support, such as vaccinations, animal disease results in significant losses and create disincentives for future livestock investments (see Chapter 6).

Due to the national and export importance of cereals, crop production data in Wolaita Zone focuses upon maize, sorghum, teff and wheat. In Damot Gale the crop grown in the largest area is teff (3,686 ha), followed by wheat (2,081 ha), maize (1,426 ha) and sorghum (299 ha). Based on the 2014 total production and land coverage data, the average yield per hectare for teff is twenty *quantal* per hectare, wheat is forty *quantal* per hectare, maize is forty five *quantal* per hectare and sorghum is eighteen.¹⁹ These figures either suggest

¹⁹ This data was provided by the Zonal Administrative Office on May 14th, 2015.

that yield per hectare has risen two to three fold between 2012 and 2014, that Damot Gale is significantly more productive than all other regions, or the figures are incorrect. My fieldwork suggests the latter. The Zonal Administration does have data on non-cereal production, although some categories are non-specific, such as ‘root crops.’ Similar to cereals, the Zonal data on enset, vegetables and fruits are significantly above national averages. The national and zonal data is further made questionable when district and zonal governments do not have accurate yield data, resulting in large data changes (such as the national 200-300% increases in a single season discussed earlier in this chapter due to methodological changes). Also of note is that the Zonal Administration does not have data on root crops, but somehow the national CSA has specific figures for all root crops. Some of the potential political reasons why data may be incorrectly reported are explored by Sandefur and Glassman (2015). However, it may also be the result of poor data and problematic data collection methodologies, as Jerven (2013) and Carletto, Jolliffe and Banerjee (2015) have shown to be the norm in many developing country statistical offices.

The Zonal Administration reports that thirty seven percent of Damot Gale has access to safe water. That access, however, does not specify distance from available sources, which include hand pump wells and springs. According to Zonal data, one-fifth of hand dug wells with hand pumps are not functional, more than half of shallow wells with hand pumps are not functional, sixty nine percent of deep wells are not functional, and eleven percent of springs with distribution points are not functional. The lack of access means family members have to walk long distances to acquire water, wait several hours in line to fill fifty liter containers and have no ability to irrigate their crops as a result. In addition to the consumption of significant amounts of time, insufficient water access poses challenges for sanitation and hygiene, resulting in greater disease burdens. A second set of data, provided by the same Zonal Administration, suggests that potable water access in Damot Gale has risen from thirty five percent in 2008 to ninety eight percent in 2014.

Damot Gale, like Wolaita Zone as whole, is home to an array of non-governmental organizations. In 2013 this included: Wolaita Development Association, Inter AID France, Rural Community Based Development Initiative Association, Mennonite Economic Development Association, Centro-Auitipar, World Vision, Orbis, Initiative

Ethiopia International Children's Association, Mossy Treatment Prevention Association, and Tesfa East Africa Water Charity Organization. Their reported budgets for 2013 surpassed 93,926,844 ETB (~\$US 4,900,000). Damot Gale is also home to a government-run microfinance institution, South Omo Microfinance. In this district, it serves 1,383 people (847 male, 536 female); if it is assumed only one member of the household is accessing credit, this means the coverage is less than five percent of all households.

This research project purposefully selected three sub-districts in Damot Gale for comparative purposes. Adeaaro was selected due to its proximity to an asphalt road and gravel roads, and hence greater access both for input supply and market access, as well as its nearness to Boditi town, which has a health clinic and secondary education. Adea Ofa, a neighboring sub-district, has a shared agroecological and socio-cultural milieu, but has no access to asphalt or gravel roads, making it challenging and costly to access services located in the town. These two sub-districts are of comparable size, with Adeaaro having an approximate population of 5,333 and 1,011 households while Adea Ofa has an approximate population of 4,000 and 771 households. In Damot Gale district there are significant differences in the number of households within the *kebeles*, so this similarity of size is not always the case (from 424 in Adea Sibeye and 1,957 in Buge). The third community, Buge, was selected because of the existence of an irrigation project, built ten years before the research took place. The part of Buge sub-district with regular and daily access to irrigation for their agricultural land was selected for research to assess the impact of irrigation access. Further details about these sub-districts are presented in Chapter 6.

Having outlined the national, regional, zonal and district contexts, the following chapter analyzes the concept of development, with specific to reference to Ethiopia, as well as the role of power and politics that occur at multiple scales of governance. While Chapter 2 highlighted some of the ways in which power and politics influences activity, such as the politicization of data, Chapter 3 engages with these topics in a more explicit fashion. The role of power and politics, and my understanding of them in relation to research

approaches and data analysis, set an important foundation for the findings presented in Chapters 6 and 7.

CHAPTER 3. DEVELOPMENT, POWER AND POLITICS

Analyzing vulnerability to food security, adoption of programs and services and the impact of participatory methodologies necessitates a contextualization of development, power and politics. This is because vulnerability is reduced, managed or increased by development activity, as much as by political action and power relations (Watts, 1983). This chapter will review some of the key literature on development, power and politics generally, and make specific references to food security in Ethiopia. While this chapter does not aim to contribute new knowledge to a well-studied field, it sets a foundation for how development, power and politics relate to food security and the ways in which these terms are utilized throughout this dissertation. Drawing upon relevant literature, the following section explores the contested nature of the concept and practice of development. While brief, it situates my own positionality within the development discourse. The second section explores power and politics, and their relation to food security. Throughout each of these sections I offer reflections on how these concepts and practices influence this research process and analysis.

3.1 ENCOUNTERING FOOD SECURITY

This section heading draws upon two books, each offering significantly different perspectives on development as a concept, and as a practice. The first is *Encountering Development* (Escobar, 1994) and the second is *Encountering Poverty* (Roy et al, 2016). The former takes a strong oppositional position against development, as a concept and practice that have failed. Escobar argues that development has caused underdevelopment, famine, poverty, malnutrition and violence, and that development is a tool of control akin to colonialism (Escobar, 1994: 4). Alternatively, Roy et al argue that

one must position themselves within the development discourse, academically or as a practitioner, “to be engaged in the battle of ideas. Instead of positioning critics as those situated outside of development, we seek to explore how those within the system can participate in such struggles” (2016: 46). One might suggest that on a spectrum of framing development positively or negatively, Roy et al (2016) offer a middle ground of critical engagement. Others, such as Kenny (2011), present a positive and optimistic promotion of activity in the name of development.

The positionality of opposing or advocating does not, however, address the nuances of the ways in which these authors have defined what they respectively mean by ‘development’ in their works. While Escobar (1994) is an advocate of civil society action for reframing development based on local realities and priorities, he also refers to the common metrics used by Kenny (2011), such as income, health, food security, stability and peace. Roy et al similarly draw upon these metrics but add “dignity, voice and power” (2016: 31), not as measures per se, but as ways in which development activity can be assessed as successful, or not. The diverse means of conceptualizing and assessing development are part of the reason such divergent opinions about it exist. More problematic, however, is that ‘development’ is often not explicitly defined when used, and thus the nuances may not be immediately obvious (Bellu, 2011; Sumner and Tribe, 2008).

The framing and dynamics of the development discourse change over time, as new ideas emerge. For some, development, as a concept and practice, emerged in the pre-WWII period as a colonial enterprise (Riddell, 2007). As Eyben (2014) notes, the transition from colonialism into something recognizably different was a slow process. Indeed, many processes are still in this transformation. Following the war and as countries gained independence, international development efforts largely focused upon macro-economic growth (e.g. Lewis, 1955; Millikan and Rostow, 1957; Rostow, 1960). This continued throughout the ‘Development Decade’ of the 1960s, and framing development in this form continues to be common, such as in the works and projects of Sachs (2005).

Although income distribution or inequality were not on the agenda in the immediate post-WWII period, the Universal Declaration of Human Rights, of 1948, set the groundwork for some different directions that would emerge in the following decades. It

was in the 1970s that poverty alleviation became focal, but that was limited to raising income per capita and employment (Riddell, 2007). It was not until the 1980s that development encompassed health, education and living standards, largely based on the work of Sen (1981; 1983; 1985). It was Sen again, in the 1990s, who was the driving force behind another shift: incorporating opportunities and capabilities in conceptualizing poverty (Sen, 1999) and the emergence of the annual United Nations Human Development Reports, which institutionalized the broader definition of development. Many of these metrics would be used in developing the Millennium Development Goals (2000-2015). The Millennium Development Goals period, however, was influenced by increasing ties between development initiatives and military action in the War on Terror, akin to the politicization of development and humanitarian activity during the Cold War.

For Soubbotina (2000) and Barder (2012), the definition of development must encompass lasting change, and should not be limited to a measurement in one moment of time. The focus on durability of change emphasizes the important role of permanent actors, notably governmental institutions and the ways in which economic, political and social systems contribute to, or negate, development that is sustained (Acemoglu and Robinson, 2006; 2012). Thus the most effective and/or appropriate implementing body for development varies based on what objectives are prioritized. With these additional layers of complexity emerging, development activity is increasingly difficult to define. As a response, Chambers (1995) opted to refer simply to ‘good change,’ and allow the objectives, actions, outcomes and impact specify the details.

Development is, therefore, not only a product of the individual describing it and the theoretical focus, but also the time period within which it is written about and the objectives sought. In reflecting upon the idea of ‘good change’ proposed by Chambers (1995) it appears that the critiques waged by Escobar (1994) and the enthusiasm offered by Kenny (2011) can be brought together wherein nuanced analyses may assess for whom good change occurs and in what forms, and for whom negative impacts result and in what forms; when, and for how long. Such an assessment would need to take into account the complex ways that development activity can result in both positive and negative change for a single individual. As this dissertation demonstrates, development activity can

result in good change, but that is not experienced equally by all, nor in the same ways. It also has the potential to result in negative change, often affecting those already marginalized.

The Government of Ethiopia positions agriculture and food security as development issues. The objectives of the programs and policies it implements in these fields represent the diversity of definitions given to the term. As explored in Chapter 7, interventions made in the name of development within the agricultural sector do not necessarily aim to enhance the food security of all people equally, including those most vulnerable to food insecurity. In some instances, such as with the agricultural extension program, the primary focus has been on high potential agricultural areas and export crops, excluding the more marginal areas and those livelihoods not geared toward export markets. Government-supported cooperatives tend to benefit certain segments of society, not only those with more land but also specific ethnic and religious groups. Microcredit services are only accessed by a small minority, often those with the assets that can ensure repayment regardless of rainfall. Other programs that are designed to support the most food insecure, such as the Productive Safety Net Program, work to entrench elite control and disempower citizens in their implementation.

Development is almost always presented with the assumption that it occurs primarily for the purpose of creating positive change, however development may be engaged with for reasons that are other than its stated objectives. The current Government of Ethiopia is well aware of this dissonance of intentions, as development activity was a primary reason for it coming to power. When the Tigrayan People's Liberation Front (TPLF) fought to overthrow the Derg government, foreign agencies acted as "the relief wings of the rebel movements, and no realistic distinction could be made between food that fed guerrillas and food that fed civilians" (Gill, 2010: 68). Although a violation of the sovereignty of the then Ethiopian government, the United States began offering food aid via Sudan to the rebel controlled territory, who were actively fighting against the Soviet-influenced Derg government. The decision to send food aid to rebel held territory was a political one, and it is political interests such as these that can influence how and why humanitarian and development activity occurs. Political neutrality is an ideal many adopt, but it is

complicated in practice (Carothers and de Gramont, 2013; Donini, 2012). Zinn (2002) argues that action and non-action speak volumes with regard to political positions and priorities. The support of TPLF fighters, as opposed to other actors, or the sovereign Ethiopian government of the day, is an example of the political nature of development priorities and the rationale that drives its practice.

The influence of political objectives upon development is not limited to the way in which international agencies and/or states interact with one another; the politics of power also influences action within the state. The 1999-00 and 2002-03 famines in Ethiopia occurred in minority-dominated regions, which have been given far fewer resources than other regions (Lautze and Maxwell, 2007) and largely remain excluded from programs and services, such as the Productive Safety Net Program (FAO, 2008a). During the Derg government, relocation was used as a tool to control the eastern regions of Ethiopia and, in the case of government-promoted resettlement in the famine-hit north, food aid was withheld due to a lack of “volunteers” for the program (Terry, 2002). The motivations that drive the Government of Ethiopia may be purposefully hidden behind the stated objectives. For example, policies might be designed to appease international donors, with little intention to see them through (Andrews, 2013). Programs may be well designed, but implemented to meet unstated objectives (Berhanu and Poulton, 2014; Cochrane and Tamiru, 2016; Planel, 2014). According to the late Prime Minister of Ethiopia, Meles Zenawi, who led the country for two decades, democracy can hinder development (Zenawi, undated). The vision of development and democracy of Meles is reflected in the ways programs and policies have been waged in the name of development, have opposed democratic processes and inhibited the transition to inclusive institutions (Abbink, 2006; Kebede, 2013; Tronvoll, 2010).

This research project begins its assessment with an understanding of the diverse, and at times divergent, meanings of development being employed. With this foundation, it is insufficient to explore the relationship between food insecurity and land size, examinations must also assess who is gaining access to government supported services. For example, the findings of this research show that those who have not been trained by an agricultural extension worker have an average land size of 1.2 *temut* while those who

have been trained have an average land size of 1.6 *temut*. Those gaining access to fertilizer have significantly larger average land holdings than those who do have access (1.5 *temut* versus 0.7). Similarly, those who have gained access to government supported and distributed improved seed have larger average land holdings (1.6 *temut* versus 0.9). As Tefera (2015) has explained, the impact of agricultural extension has been the marginalization of poor, rural households, despite being created with the stated intention to do otherwise. It comes as no surprise that, in an assessment of satisfaction, forty five percent of farmers said they were dissatisfied with this freely provided service (Elias et al, 2015). How is it that these services, which are supposed to be offered equally and in the name of development, disproportionately benefit those with more assets and exclude those who most need them? The answer, I argue, is that any framing of development activity be understood within the context of politics and power.

3.2 POWER AND POLITICS

The expression of power in order to maintain political control can take the form of physical force. The Government of Ethiopia has frequently utilized this tactic. For example, it is estimated that as many as 500 protests occurred in response to a federal proposal to expand city administration planning into Oromia Regional State between November 2015 and March 2016. The government responded with lethal force and mass arrests, resulting in up to 400 protester deaths (HWR, 2016). In July and August of 2016 there were large-scale protests about the rezoning of districts from Amhara Regional State to Tigray Regional State, resulting in 97 protester deaths (Amnesty International, 2016). Between 2011 and 2014 regular protests occurred in response to the government seeking to mandate individuals for religious leadership positions. In response to these protests, the government conducted mass arrests with reports of mistreatment of those detained (HRW, 2012b). Prominent leaders of the Muslim community were detained without charge in 2012 and held until convicted under anti-terrorism legislation in 2015 with sentences ranging from seven to twenty two years (Fasil, 2015). Until recently, the

heavy-handed use of force has restricted collective action. However, as protests expand in scope, scale and frequency, and as divergent protest groups begin to work together, the government appears to recognize this strategy will no longer be viable. For example, it has called upon diasporic and domestic opposition groups to meet at the African Union (Addis Standard, 2016). While force is an important component as an expression of power, there are other means which are less confrontational but can be sustained and transformational.

The expression of power and control can be ideological (Gramsci, 1971). Expressed in this form, power can be normalized within mundane, regular activities and practices (Foucault, 1977). The concept of governmentality was proposed and developed by Foucault (1979) to assess how power is expressed and control established. Foucault describes governmentality as the “ensemble formed by the institutions, procedures, analyses and reflections, the calculations and tactics, that allow the exercise of this very specific albeit complex form of power” (1979: 20). Drawing upon governmentality as a framework for assessing power, the (non)actions, policies, programs and statements of a government can be evaluated as a means to shape individuals within society to align with the government’s objectives. Governing can therefore be viewed as an assertion of power and an exercise of control.

The ways in which programs have been used to service government control and strengthen elite power have been well documented in the development literature (de Waal, 2015; Ferguson, 1990; Li, 2007; Scott, 1985). However, these studies have tended to be anthropological in nature, and limited progress has been made with regard to integrating these perspectives and findings into development practice, or confronting development practice itself (Carothers and de Gramont, 2013). A number of researchers have reflected on how development actors have been unable or unwilling to engage with the politics of power (Autessere, 2010; Starn, 1991; Uvin, 1999). This study approaches the questions of vulnerability to food insecurity and low adoption rates while remaining cognizant of the ways in which development is politicized, acting with dual purposes of achieving a particular development outcome as well as an expression of power and establishment of control. It is informed by the fact that development has been used as a

means to centralize control and that much activity done in the name of development was done to achieve alternative objectives (Uvin, 1999).

Even if the politicization of policies and programs becomes normalized and routine, in the long-term it can foster opposition, and have negative impacts on the wealth generation that the elites are attempting to capture. Acemoglu and Robinson argue that politicization and patronage of this nature can create a negative cycle:

When extractive institutions create huge inequalities in society and great wealth and unchecked power for those in control, there will be many wishing to fight to take control of the state and institutions. Extractive institutions then not only pave the way for the next regime, which will be even more extractive, but they will also engender continuous infighting and civil wars. These civil wars then cause more human suffering and also destroy even what little state centralization these societies have achieved. This also often starts a process of descent into lawlessness, state failure, and political chaos, crushing all hopes of economic prosperity (2012: 366-367).

Although the above prediction is slightly too deterministic, the historical study conducted by Acemoglu and Robinson (2012) demonstrates that this cycle has often repeated. The World Bank has begun to advocate for citizen power to “select and sanction leaders who have the political will and legitimacy to delivery public goods needed for development” as opposed to the traditional development assistance, which “can contribute to the persistence of government failures” (Devarajan and Khemani, 2016: 1). The forthcoming flagship World Bank report, *World Development Report 2017: Governance and the Law*, will further highlight the need for greater reflexivity on power within state-citizen relations, and those mirrored or reinforced by development activity.

Viewing political action from a perspective that is attentive to power in Ethiopia assists in answering the above-raised question: how and why is it that the services designed to support all people, or the most vulnerable, disproportionately benefit the relatively better off? One explanation is that the programs and services are politicized, expressing power and asserting control. Within Ethiopia, Berhanu and Poulton (2014) and Planel (2014)

have found this to be the case in the implementation of the agricultural extension program. Chinigo (2013) has also found it in rural land reform, Cochrane and Tamiru (2016) have identified it within the Productive Safety Net Program, and de Waal (2015) notes that the politicization of access to services and the provision of goods has been commonplace in rural Ethiopia for decades. In fact, the roots can be traced much deeper, to the Imperial period, as noted by Acemoglu and Robinson (2012: 358, 361), highlighting the broader historical context within which these practices, and cycles of practices, exist. This broader contextualization of qualitative and historical knowledge was emphasized by Mintz (1985), and to the extent possible, has been integrated into this work.

Understanding the ways in which power and control are embedded within development activity is not only a matter of improving implementation or enhancing effectiveness, as Acemoglu and Robinson (2012) point out. The current situation within Ethiopia resembles that of Rwanda before the genocide, which Uvin described as: “Ethnic inequality; institutionalized, state-organized racism; regional politics; lack of dignity and self-respect; the generalized presence of impunity and fear of the absence of justice; human rights violations; the oppressive presence of the state” (Uvin, 1999: 45). Worryingly, the trajectory is similar: agricultural crises, followed by economic crises and then political crises and “a rise of political discontent within the country” (Uvin, 1999: 53). In August 2016 an opposition politician outlined that the rising tensions, increasing frequency and scale of protests, and rise of anti-government, often ethnic-based, sentiment could result in civil war (Hayden, 2016). Former opposition leader Berhanu Nega, and current leader of a rebel movement based in Eritrea that is fighting the Government of Ethiopia, anticipates that the resistance movement will topple the current government within the coming decade (Hammer, 2016). Addressing these concerns is crucial for the future stability of Ethiopia (Adugna, 2011; Feyissa and Lawrence, 2014; Tache and Oba, 2009). The participatory methodology of this study has been designed to contribute, however modestly, to that goal.

Just as Chapter 2 progressively narrowed down in scale in presenting the research context (from national to regional, zonal and district), Chapters 3 and 4 narrow down the

theoretical foundations of this research. This chapter analyzed the broad concept of development and how activities done in the name of development interact with politics and power. Chapter 4 looks specifically at the concept of food security, its framing and its measurement. After analyzing the broad (Chapter 3) and specific (Chapter 4) conceptual components of this research, the final section of Chapter 4 outlines the theoretical foundations that I draw upon and utilize, while attempting to explore my biases in a process of critical reflexivity.

CHAPTER 4. ON FOOD SECURITY

Food insecurity is a complex, global challenge. The most common definition of food security is that developed by the Food and Agriculture Organization (FAO) of the United Nations: “when all people, at all times, have physical, social and economic access to sufficient, safe and nutritious food that meets their dietary needs and food preferences for an active and healthy life” (2003:28). The FAO suggests that approximately 925 million people are chronically hungry and 2 billion people lack food security (FAO, 2010). Yet, the conceptualization and assessment of food security varies greatly. There are at least two hundred definitions of food security, and hundreds of indicators used to measure it (Hoddinott, 1999). As the FAO summarizes, there are also “differences in methodologies – what to measure, how to measure it, and even how well to measure it – and therefore in the measurements themselves. And there are differences in complementary (and often competing) terms such as “food safety”, “food sovereignty” and the “right to food” – all of which further contribute to the challenges of communicating for and about food security” (FAO, 2012b: 20). While the lack of safe, sufficient and nutritious food is not altered by its definition, the way that it is understood and measured impacts the programs and policies designed to strengthen it. Understanding the entire history, as well as the breadth of definitions, policies, agendas, ideologies and programs is beyond the scope of this chapter. The topic has been subject to at least one doctoral thesis, which has resulted in a 684-page volume on the subject (Gibson, 2012). This chapter presents an overview of the concepts of food security, the scales at which these definitions operate, and the metrics used to measure them, as a means to deconstruct the concept.

Before delving into food security, it is noteworthy that some components of this discourse have garnered more attention than others. Large-scale failures of food security are frequently recorded in history and reported in contemporary times, but a silent famine of chronic under-nutrition and malnutrition often goes unnoticed and unnoted. Tied to

poverty and inequality, the scale is immense. It is estimated that each day more than 16,000 children under the age of five, die due to diarrhea, malnutrition, tuberculosis, meningitis, hepatitis, malaria, respiratory infections (such as pneumonia) and childhood diseases (such as measles) (UNICEF, 2016). All of these causes of death are tied to food as the health of a person, and their immune system, impacts their potential for recovery and survival (Butterly and Shepherd, 2010). In the Ethiopian context, estimates suggest that almost half (44%) of children under five years of age have stunted growth due to malnutrition (DHS, 2011). Malnutrition is one of the components of food security that has received an insufficient amount of attention to date.

4.1 FRAMING FOOD SECURITY

Hunger is not new, but our thinking about it has changed significantly over the centuries and decades. In 1798, Malthus proposed that the rate of population growth is faster (exponential) than agricultural growth (lineal), thus resulting in a situation of insufficient resources causing famine. Despite rapid population growth since that time, the world produces a sufficient quantity of food to feed the entire population (Gibson, 2012; WFP, 2016). In 2008, the FAO concluded that while “the world has grown richer and produced more food than ever” hunger has increased (FAO, 2008b: 4). This chapter focuses upon the concept of food security and the fact that hundreds of millions of people are food insecure - and that food security cannot be viewed in isolation since it intimately interacts with poverty, inequality, human rights violations, resources and capacity, agroecology and the climate, instability and conflict, as well as overconsumption and waste.

This section takes a narrow view of the concept of ‘food security’, and in doing so it neglects the centuries wherein challenges of food insecurity were encountered and addressed. Gibson (2012) offers more than 200 pages in his volume to the history of the concept, a feat that will not be repeated, nor adequately summarized here. The specific concept and term, food security, has a deep history, much deeper than the literature tends

to portray. As Gibson (2012: 481) notes, “the idea that food security emerged fully formed as a concept in the mid-1970s in frankly laughable were it not for the pervasiveness of its many believers.” Indeed, when I first started writing about food security I also repeated the common narrative that the concept of food security arose out of the challenges of the 1970s: the global oil crisis and its related food crises as well as large-scale famines that drew worldwide attention (Ethiopia 1972-73, Bangladesh 1974, Cambodia 1975-79). However, the concept of food security gained global attention and was subject to much more discussion in the 1970s, which is the main reason so many point toward this period as its origin (e.g. IFAD, 2009; Maxwell and Smith, 1992; UN, 1975; World Bank, 2008). Amidst the crises of that decade, food security became a prominent global topic of discussion, one of increasing global concern. Food security concepts began to be applied to diverse scales – global, national, sub-national, household and individual – and the broader systems of food that affected its security (Barraclough and Utting, 1987; Smith, Pointing and Maxwell, 1993).

As the concept developed in the 1970s and 1980s, the bulk of the attention was paid to availability and national access, and specifically to increasing production and building food reserves (Adedeji, 1989; FAO, 2006). As the concept developed with time, so too did its complexity. Food security began to address questions of equity, poverty and other barriers, in addition to production, storage and supply at the macro-level. At the 1974 World Food Summit the focus was on food volume and stability of supply, in 1983 the FAO added the concept of access, the World Bank included sufficient individual consumption in 1986 and at the 1996 World Food Summit ‘safe and nutritious’ along with meeting food preferences were added (FAO, 2013b). The culmination of these developments is the Four Pillars Model, proposed by the FAO (2009), which focuses upon four key areas: availability, access, utilization and stability/vulnerability.

In the same year that the World Food Summit was refining its 1996 definition, members of a grassroots coalition of peasant farmers called La Via Campesina proposed a new concept: food sovereignty. Rather than access, this definition focused upon rights and control. They argued that local production should prioritize local consumption, and be shaped by local needs and what is locally defined as appropriate. Foundational to this

reasserting of control was a protest against corporate control, industrialization and globalization of agriculture, food products and food systems (La Via Campesina, 2011; 2013). Advocates of food sovereignty believe that food security can only be achieved with a radical restructuring of society, namely through localization and the prioritization of self-sufficiency (Holt-Gimenez and Shattuck, 2011; Pimbert, 2008).

The ideals of the sovereignty movement have been challenged as having the potential to result in undemocratic outcomes (Agarwal, 2013). The possibility of a peasant-driven food system focused on self-sufficiency providing surplus to meet global demands has been contested (Bernstein, 2013). Concerns have also been raised about the extent to which nationalist policies emerging from the food sovereignty discourse can negatively affect global food security (Cochrane, 2014). It has also been suggested that the food sovereignty movement needs to better integrate international trade within its discourse, as many smallholder farmers rely upon it (Burnett and Murphy, 2013). In response to these challenges, new approaches to food sovereignty shift attention to justice, individual rights and environmental responsibility, which brings together many of the concepts of food security and food sovereignty (Kneen, 2012).

The criticisms of some of the policies proposed by members of the food sovereignty movement, and the adjustment of the discourse to be more practical, may lead to the incorrect assumption that the movement is primarily about changing policies, whereas it should also be viewed as ideologically-driven. Rather than propose policy remedies (see those of: Holt-Gimenez and Shattuck, 2011; Pimbert, 2008), La Via Campesina offers a set of ideas founded on the notion that farmers should control the means to food security, as opposed to international corporations, and that farmers should have access to the fruits of their labor, rather than rely upon the market to meet their needs. This ideological contribution is based on the fact that markets “do not just allocate a good based on how much it is needed or desired by the buyer; they also allocate based on the consumer's ability to pay for it. And, in a world of huge inequalities, those with the greatest needs are often those with the least ability to pay” (Ferguson, 2015: 130). Thus, the movement offers an ideological alternative to market-based solutions. In advocating for specific policies, the food sovereignty movement has had limited success, or has simply shifted the

discourse towards justice and human rights. As an ideology, it has fostered global activism.

For reasons specific to Ethiopia, the research presented in this dissertation focuses upon food security. This is primarily because the food sovereignty movement has had a negligible impact in the country. It is also because the food security in Ethiopia discourse has included important considerations of justice, rights and sustainability, and therefore encapsulates much of what the food sovereignty movement has introduced into the broader conversation about ensuring all people, at all times, have sufficient, safe and nutritious food. Although I have written about food sovereignty in Ethiopia (Cochrane, 2011), the ideological and policy sphere of the movement has limited traction with farmers and policymakers, resulting in my focus on the rights and justice components. This framing is more appropriate for the audiences and one which draws upon existing international and constitutional law.

The scale at which the concept of food security is applied affects the application of the definition. This is demonstrated by the different manifestations of priorities, policies and programs based upon global, national, regional, community, household or individual levels. The FAO definition, for example, is a global definition (all people, at all times). This global perspective does not address issues of equality or equity, whereas Powledge (2012) suggests a definition that includes equal and consistent access to food by all people. Another approach, rooted in social justice, is a human rights-based perspective, which includes international conventions, including: Universal Declaration of Human Rights, the United Nations Convention on the Rights of the Child, the International Covenant on Civil and Political Rights, the International Covenant on Economic, Social and Cultural Rights, the African Charter on Human and Peoples' Rights, the Geneva Conventions and the Universal Declaration on the Eradication of Hunger and Malnutrition. Rights advocates also point to a non-binding American resolution passed in 1976 stating that every person throughout the world has a right to a nutritionally adequate diet (Messer and Cohen, 2007). International conventions do not stipulate responsibility if, and when, a state is unable to fulfill the rights of its citizens. Thus, the right to food, although utilized in the global discourse, often falls within national

jurisdiction and as such respective governments “are primarily responsible for instituting and maintaining this order and thus for protecting the right to food” (Li, 1996: 154).

In this research, I adopt a human rights-based approach primarily because it reframes food security as an issue of justice, rather than assistance. Ferguson frames this as a “rightful” share, which casts “aside age-old presumptions about who ‘deserves’ to receive payments and severing the link between labor and income in a quite fundamental way” (2015: 188). Furthermore, Ferguson argues, a shift to rights, or rightful share, offers citizens new and powerful social identities as co-owners of national resources, rather than deserving recipients of support. As explored in more detail below, it is this theoretical framework upon which I base my approach to food security research in this dissertation.

Food security from a national perspective often focuses upon domestic food self-reliance, or self-sufficiency, so that all citizens have access to food, at all times (Africa Leadership Forum, 1989). Domestic self-sufficiency is a goal few nations are able to meet; in fact the majority of nations, 131 countries, are net food importers and are reliant upon trade to meet their domestic needs (Bailey and Willoughby, 2013; Ng and Aksoy, 2008).

Assessments of food security conducted at the national scale tend to focus on aggregate demands and availability (Alamgir and Arora, 1991). This does not take into account the complex barriers around availability throughout the nation, and accessibility by everyone.

In analyzing sub-national food security, regional assessments can support the identification of geospatial trends, such as regional food deficits and rural-urban differences, as well as socio-cultural and political factors (Barraclough and Utting, 1987; Stamoulis and Zezza, 2003). The FAO (2013b) advocates analyzing food security using this sub-national approach. However, sub-national scales of food security do not shed light on the detailed dynamics of food distribution within communities and households, and thus may not capture the reasons certain people in society, such as minorities, castes, classes and genders, face food insecurity while the sub-national region is food secure. To address this, household level approaches to food security are taken, assessing whether all members of the household have sufficient, safe and nutritious food at all times. These, however, tend to aggregate demands and availability (Alamgir and Arora, 1991) and reflect the challenges of the sub-national assessments at the micro-level, by insufficiently

evaluating intra-household distribution based on factors such as positionality, age, ability, health status and gender. New manifestations of household surveys have attempted to take these dynamics into account (USDA, 2008).

In response to the limitations of household level assessments, individual level food security assessments have been employed. In some instances, this simply includes conducting the household survey with multiple members of the household independently. Foundational to this shift in focus is an effort to ensure all people have their needs and rights met. The results of such assessments can highlight micro-level discrimination, marginalization and exclusion and support the creation of specific policies and programs, such as school-based feeding programs or conditional cash transfer programs and policies to eliminate gender bias. Taking a rights-based approach to ensuring food security is a political endeavor and may result in nations considering market regulation, a type of change wherein national interest may conflict with international conventions and agreements.

Community level food security approaches attempt to better integrate issues of justice in their assessments, addressing some of the concerns raised by the food sovereignty movement. One of the shifts in prioritization in many community-level assessments of food security is a focus upon the broader economic, environmental and social components of the food system (Hamm and Bellows, 2003). As a result, a much greater emphasis is explicitly laid upon issues of justice and sustainability. Community-level analyses of this nature are less common, often due to the specificity and cost of the studies, but emerging ideas in the field of food security studies suggests that the future will place far greater emphasis on “system thinking that incorporates a diversity of disciplinary perspectives” (Westengen and Banik, 2016:15-16). The insight gleaned from community level analyses have the potential to alter the way in which food security studies are done at all scales, focusing upon the dynamics of food systems, in addition to the specific measures of a system.

In household and individual levels the most common metric of assessment is caloric intake. This aggregate assessment is useful, but does not identify the composition of diets. For example, surveys may ask how many meals and how much food was consumed. What is excluded with these measures is the quality of diets, and thus some surveys have

begun to focus on dietary diversity, whereby consumed foods are categorized by type so that macro- and micro-nutrient consumption assessments can be integrated. The challenge with this approach, however, is that a relatively straightforward set of two or three questions may balloon into pages of food groups, some with hundreds of food items, which are complicated by language and classifications as well as limitations of what is and is not included. Nonetheless, studies of dietary diversity can shed significant insight into the quality of diets, the differences of dietary composition within the household, and the impact of seasonality on diets (Hirvonen, Taffesse and Worku, 2015).

One food security scale does not fit all purposes. Each of the scales of assessment contribute unique information and advance our understanding of food security in different ways. Furthermore, different scales of information are used by different decision makers in determining how resources are allocated – this may be globally, nationally, sub-nationally, within a community and within a household. As a result, the selection of a scale, or the analysis of the results, ought to take into account the objectives, needs and stakeholders of the research, while outlining its respective limitations. For example, community-level studies can significantly advance knowledge about systems, individual level analyses present unique data on intra-household distribution, and global studies highlight the trends between nations. Each of the scales, therefore, is important. The deconstruction of food security approaches by scale highlights what the different foci emphasize. Doing so supports the prioritization of scale within research so that the expected results align with the informational gaps and the requirements of decision makers. Importantly, this deconstruction emphasizes the limitations of each scale, enabling a more nuanced critique of food security studies as well as setting the stage for the limitations of this study.

4.2 MEASURING FOOD SECURITY

Challenges of definitions and scale are only the tip of the iceberg. How food security is measured is even more diverse, and in many instances can have even greater impact on the results. The concept of availability, for example, may encompass a wide array of factors, including: quality, quantity, production, distribution, exchange, storage, processing, transportation, packaging, crop type, ownership, management and harvesting. Security and stability might require analyses of precipitation, water, seasonal variation, market vulnerability and volatility, export bans, input and fuel costs, conflict and gender. Understanding sufficiency, safety, nutrition and appropriateness poses similar challenges. In addition to the determination of terms and metrics, layers of complexity compound the challenges of food security research in the form of barriers. Access, for example, might be affected by financial, geographic, ethnic, gender, religious, health-status, socio-cultural, ability and age factors. Even more problematic is the unavailability of seasonal data, as the timing of data collection significantly impacts the results; a study in Ethiopia shows an almost ten percent difference simply based on the timing of data collection (Chirwa, Dorward and Vignen, 2012; Dereveux, Sabates-Wheeler and Longhurst, 2012). In Gibson's (2012: 16) detailed history of the concept of food security, he concludes that the "sad glaring truth however is that there is no extant measure, no yardstick by which the food insecure can be gauged."

As both Gibson (2012) and Barrett (2010) note, the result of not having an adequate direct measure is to utilize proxy measures, which are commonly used to assess food security. Yet, these proxies have a series of limitations and pose a number of challenges, even when attempts are made at triangulation – the "laudable aims" Gibson explains "are racked with disunity and inconsistency" (2012: 16). The diverse proxies employed significantly influence the way in which results translate into policies and programs, and therefore impact their effectiveness. "Each measure" Barrett explains "captures and neglects different phenomena intrinsic to the concept of food security thereby subtly influencing prioritization among food security interventions" (2010: 826).

A common proxy metric for understanding food insecurity is stages of malnutrition. Acute food insecurity is defined as a limited time period, for which one requires short-term assistance to cope with a temporary or unusual condition. Acute food insecurity can also be protracted, resulting in malnutrition (a deficiency or imbalance in the diet essential to good health). Chronic malnutrition is a permanent condition of malnutrition, which can result in starvation when prolonged or severe. Famine occurs when there is insufficient food in a widespread and persistent manner, often characterized by an unusually high number of deaths due to chronic hunger, malnutrition and starvation (Butterly and Shepherd, 2010). These technical, often medically diagnosable, terms provide one means of measurement. However, as pointed out by Sen (Edkins, 2007; Sen and Dreze, 1999), food security cannot be analyzed as a biological or environmental phenomenon, but as an embedded political, economic and socio-cultural outcome.

In the case of Ethiopia, famines occurred in 1999-00 and 2002-03, the latter of which resulted in over 14 million people being in need of emergency food aid. In the 2002-03 drought, the significant international response was only made possible because a large amount of food was sent to the region in anticipation of food needs in response to conflicts in the Middle East (Gill, 2010). This highlights some of the extra-national factors affecting countries with limited capacity, and the ability to respond to events of severe food insecurity. Although drought has played a significant role in the history of Ethiopian famines, so too have intra-national politics and socio-economic factors. Both of the recent famines took place in areas of minority ethnic groups, suggesting the role of political inclusion and/or the malfunctioning of democracy in Ethiopia are significant contributing factors (Lautze and Maxwell, 2007).

The measurement of food security varies greatly. To demonstrate this, consider the differences between the metrics outlined in two FAO data collection tools: (1) Common Food Security Indicators and Possible Data Sources, and (2) the Food Insecurity Experience Scale.²⁰ In presenting these examples, the objective is to explore the ways in

²⁰ These tools were shared by the Food and Agriculture Organization on December 30th, 2015, including translations into three Ethiopian languages (Amharic, Oromiffa and Tigrinya). In addition, reference was made to work by Ballard, Kepple and Cafiero (2013). A range of other tools exist (e.g. McArthur, 2016; WFP, 2009). In the comparison made in this dissertation, FAO tools have been used because of they are

which indicators can significantly vary, not to analyze each indicator in depth. The first of the tools, Common Food Security Indicators and Possible Data Sources, has five categories of indicators, reflecting the ‘four pillars’ of accessibility, availability, stability and utilization, to which the FAO has added measures of malnutrition. The FAO provides twelve indicators for accessibility, half of which are proxy measures drawn from national data, such as GNP and GDP per capita and percentages of the population below the national and international poverty lines. The survey data focuses on individual expenditure, such as share of income spent on food, share of own production in household food supply and number of people in need of food transfers/assistance. Measures of availability, of which there are nine, are all derived from agricultural and trade data, such as agricultural production growth, share of food imports, and daily per capita supply of calories, protein and fat. The FAO proposes seven indicators for stability, which also focus on agricultural and trade data (e.g. variation in grain yields, variation of food imports), and include two survey questions about seasonal variation of food supplies and volume of variation. Two proxy indicators are proposed for utilization: population without access to safe water, health services and sanitation, and prevalence of water borne diseases. The final category of measures for malnutrition are medical in nature, such as the percentage of undernourished, underweight, stunted, and wasted individuals in society.

The thirty seven proposed indicators are largely proxy measures of food security and rely almost entirely upon national census data, and basic household survey data. As explored in the measures of scale, this survey would typically be employed for global, national and sub-national assessments. The results would provide high-level detail about the extent and trends of food security, and allow decision makers to determine where and when additional resources are required. Although not captured in this FAO list, recent studies have sought to add measures related to governance and policy, covering issues such as political commitment and the existence and quality of national nutrition policies (te Lintelo et al, 2016).

widely applied. This analysis is not meant to exclude other approaches, but to summarize the challenges of metrics and measurement.

The Food Insecurity Experience Scale, on the other hand, which was also developed by the FAO, offers detailed individual level insight, including perceptions of food security and thus entering into spaces of subjectivity and relative food security. For example, the survey includes metrics that ask the following:

In the last 12 months:

- (Y/N) You were worried you would run out of food because of a lack of money or other resources?
- (Y/N) You were unable to eat healthy and nutritious food because of a lack of money or other resources?
- (Y/N) You had to skip a meal because there was not enough money or other resources?
- (Y/N) You ate less than you thought you should because of a lack of money or other resources?
- (Y/N) You went without eating for a whole day because of a lack of money or other resources?

With questions such as these the FAO is seeking to assess the severity of food insecurity based upon experiences of it, offering a very different picture than the results of the first data collection tool. The survey process could include men and women, different ethnic and religious groups, and respondents of all ages. The results can provide a detailed picture about the distribution of food insecurity within a country (if done nationally) as well as at the community and household levels. As outlined by Ballard, Kepple and Cafiero (2013), the findings can support the creation of targeted programs and support the prioritization of interventions.

The process for this research resulted in an unintended natural experiment: during my ethics application process the university understood that the survey would be co-created during the research phase (described in Chapter 5), but wanted a sample survey to review the expected types of questions. As a result, the questions and metrics I developed in the preliminary survey can be compared to the final outcome (see Appendices J, K and L). I was not new to food security studies in Ethiopia, having worked with One Acre Fund,

Save the Children and UNICEF on related subjects. With two of the three organizations I was involved in household surveying. The preliminary survey had thirty four questions, only eleven of which (32%) were unchanged in the final co-created version, and four of those questions were set questions based on changes over time; thus only a fifth of the questions (21%) that were subject to discussion were left as I had outlined them. Examples of this include basic questions, such as number of members living in the household and the availability of assets (metal roof, mobile phone, radio). During the collaborative community-based process, almost a third of the questions I had initially proposed were not raised as important for inclusion in the co-produced version, resulting in eleven of the initial questions not being asked at all (32%). For twelve other questions, the metrics were changed (35%). Important to the co-production process was that fourteen new questions were added that were not initially included, including questions about migration, methods of plowing, the number of fruit and cash crop trees, time spent collecting water and firewood, number of malaria cases and presence of a vegetable garden. Based upon these significant changes, it is clear that local knowledge and experiences of food security offer significant insight, and are sources of information that tend to be excluded in the design phase. The FAO Food Insecurity Experience Scale, for example, used focus groups to test the questions, and assess the language of translations, but not to determine the questions or the metrics. Yet, the comparison of my own preliminary survey and the one co-created with communities demonstrates how varied the questions and metrics can be. As explored in the methods and findings sections, the participatory, co-produced approach to creating data tools enabled typically unasked questions to be explored and appropriate measurements to be applied.

Maxwell, Vaitla and Coates (2014) undertook a similar process, but rather than focusing upon the questions and metrics, they examined how the results differ when determining levels of food security. In two districts of Tigray Regional State they compared the results of seven tools, which resulted in significant different prevalence rates of food insecurity. The first difference they outline is one explored above, the usage of different questions and metrics. However, they also posit that certain tools may be more appropriate for certain severity levels of food insecurity and that the determination of what is, and is not, indicative of food insecurity is not uniform. Importantly, they conclude that food security

“has no accepted gold standard” and “it is difficult to say which indicator preforms ‘best’ in correctly and reliably identifying food insecure households” (Maxwell, Vaitla and Coates, 2014: 107). It is, therefore, worth emphasizing that like other approaches, the one undertaken in this research has strengths and weaknesses, and is not presented as a model that is best suited for all places and purposes (Cochrane, 2017a).

4.3 THEORETICAL APPROACH IN THIS RESEARCH

This dissertation is just one of many potential stories that could be told about food security in southern Ethiopia. As Cronon (1992) pointed out, all stories are shaped by their authors. Just as I have criticized the selective presentation of information by the Government of Ethiopia and Human Rights Watch regarding resettlement and foreign agricultural investment (Cochrane and Skjerdal, 2015), I expect that others will find fault with this narrative. Thus, to the extent possible, I venture to make my biases explicit, while recognizing that I may have blinders that I am unaware of. The historian Eugen Weber reflected on why the obvious did not necessarily become apparent to him, concluding that when “one looks for different things, one sees different things” (1976: x). We are all, as the Italian Marxist Gramsci stated, “conformists of some conformism or other” (1975: 324). The ways in which we conform includes our modes of thinking, norms, perceptions and priorities, what Gitlin described as how we view “what exists, what happens, and what matters” (1980: 6). As a consequence of these conformities, what we view as important influences our narratives and takes shape in the presentation of our ideas.

The narrative of this thesis could have been framed much differently. Exploring some of those alternatives helps expose some of my biases. Building on the work of Scott (2009), one could frame the entirety of smallholder farmer action from a political perspective whereby actions of the poor are primarily acts of resistance against elites. To do so, one could draw on historical examples of how farmers changed crops to avoid governmental

controls and taxation (McCann, 1995), or examples of resistance in the highly politicized rural programs and services (Cochrane and Tamiru, 2016). Alternatively, the focus could have been environmental, such as conducting research on the processes that influenced a transition from a sustainable agricultural system to one that is unsustainable, causing rapid soil erosion and depletion of soil nutrients. Such a study may have focused upon alternative agricultural movements, such as developments in agroecology, and how farmers view the milieu of choices they face and where more sustainable practices fit within their livelihoods. The study could, as Yelemtu (2014) has done, have taken a deeper ethnographic dive into one specific aspect of smallholder farmer knowledge and practices. I did not take these paths, and I suspect it reflects my assumptions and biases.

What is foundational to this research is the theoretical framework of human rights, and specifically that all people have the right to sufficient, safe and nutritious food at all times. While protecting the right to food is essential, my positionality with regard to human rights is that we need to move away from viewing human rights in isolation, and instead regard them as interacting with one another. Thus, the right to food is important, but cannot neglect other human rights, such as those to education and freedom from arbitrary deprivation of land. As I have argued elsewhere (Cochrane, 2016), human rights must be evaluated in totality. Protecting food security at one moment may involve processes that inhibit the potential for food security to be attained and sustained, such as by restricting the ability for citizens to participate, speak freely and engage with their government.

As discussed above, the protection of human rights, even if enshrined in ratified international conventions, is largely the responsibility of the nation state. As such, rather than global human rights and the problematic space of responsibility in the international sphere, this work focuses upon the Government of Ethiopia, which was amongst the first nations that voted in favor of the Universal Declaration of Human Rights in 1948. It has also ratified the International Covenant on Civil and Political Rights, the International Covenant on Economic, Social and Cultural Rights and the African Charter on Human and Peoples' Rights. In taking this national focus, however, I recognize that the government has limited capacity, having one of the lowest gross domestic products per

capita globally. As a result, rather than make an argument about the need for the protection of human rights in Ethiopia, I have taken a pragmatic approach in assessing how the past and current programs and policies have worked, and how these existing resources can be more effectively and appropriately utilized in an effort to strengthen food security for all. Farmer (2005: 9) argues that “pragmatism assuredly has its role even in utopian struggles” but Goldman (2005: 13) might suggest this legitimizes the “project of development, writ large, justifying it as a necessary if flawed uniform project.” I believe this falls into the simplistic dichotomy of positive practitioners and negative academics described by Chambers (1983: 29) whereby “to some critical and intolerant academics, practitioners are narrow-minded philistines and at best naïve reformists, part of a system of exploitation of which they are largely unaware.” I aim to work and act in the space in-between, the messy middle ground of critical engagement.

Specifically, I have done so by focusing upon household and community level food security. The limitations of this choice are outlined in Chapter 5. At this point it is worth highlighting that this focus aligns with the proposed research questions. The programs and services offered by the Government of Ethiopia are almost entirely organized around the concept of the household, even if its use as a metric is limited and limiting (Randall and Coast, 2015). For example, intra-household and intra-community inequalities are missed and there are ambiguities about household membership. However, in order for this research to strengthen the policies and programs it evaluates it must, at least to a degree, utilize the same metrics and measurements. That said, the research questions and research tools were not designed to mirror governmental ones. Rather they were designed so that the government could assess the findings in relation to the way in which their programs and policies are already organized. In addition, intra-household and intra-community issues were included in this study, largely in the qualitative research work, whereas the household and community level assessments had both qualitative and quantitative data sets.

Taking a pragmatic, and therefore largely incrementalist, approach to human rights, necessitates reflexivity about the place and theoretical approach of this research (Eyben, 2014). As Farmer (1999: 15) argues, double standards must be forcefully questioned. Am

I, based in my specific place and time, justifying the unjust? Is the pragmatic approach akin to Madrid's 1789 introduction of more humane laws of slavery (Anderson, 1983), and thereby justifying the enterprise? Inasmuch as I have discussed human rights as a foundational means through which recommendations are made, there are embedded assumptions about what manifestation human rights take, and more broadly what is the means to attain justice. While I have been influenced by the work of Rawls (1971) and the Kantian grounds upon which he builds (1781), my own understanding of justice aligns better with Sen's (2009) realization-focused comparison and Farmer's (1999) pragmatism, than it does with the Kantian and Rawlsian transcendental institutionalism. In recognizing the plurality of worldviews, and one's inevitable conformity, as well as the plurality of ideas that inform how justice ought to be envisioned, I draw upon Smith's (1790) idea of the impartial spectator to evaluate my own work.

Rawls proposed a theory of social justice based on 'justice as fairness', a theoretical exploration of how just laws might be arrived at. While immensely influential, Rawls' theory lacks practical applicability. At the same time, theories do not always need to be practical and applicable. The theory proposed by Rawls has supported revolutions in diverse fields of study and practice that now seek to incorporate considerations of social justice. Thus this philosophical idea transformed the world as an idea, rather than as a practical, pragmatic and implementable action.

Although Rawls' most well known work was published in 1971, he first proposed the idea of 'justice as fairness' in a 1958 publication. During the 1960s and 1970s other 'radical' ideas developed; of note is the influential work of Gustavo Gutierrez and liberation theology, which proposed the preferential option for the poor (1971). What unites the work of Rawls and Gutierrez is the powerful argument that justice cannot be the result of minor adjustments (i.e. pragmatic incrementalism), but demands a reorganization of society and resource distribution. Viewing my research from the perspective of either of these demanding standards, my theoretical approach may seem insufficient as it does little to confront the global injustice that entrenches poverty in Ethiopia. The recommendations that result from this theoretical framework may appear to insufficiently expand the opportunities smallholder farmers have, thus limiting them to what Weber

described as “hard labor without chains” to which they remain “bound by necessity” (1976: 14).

Cognizant of these criticisms and shortcomings identified by Smith’s suggested perspective of the impartial spectator, I continue down the path that seeks to move toward justice in a way that I see as being the most practical and realistic, in line with the positions of Farmer and Sen, rather than await or demand a form of perfect justice that appears impractical or unrealistic. Starting “from where the world is, not as I would like it to be” (Alinsky, 1971: xix), I optimistically take the position of Hardt and Negri (2004: 289), who explain:

There is no conflict here between reform and revolution. We say this not because we think that reform and revolution are the same thing, but that in today’s conditions they cannot be separated. Today the historical processes of transformation are so radical that even reformist proposals can lead to revolutionary change. And when democratic reforms of the global system prove incapable of providing the bases of a real democracy, they demonstrate even more forcefully that a revolutionary change is needed and make it ever more possible. It is useless to rack our brains over whether a proposal is reformist or revolutionary; what matters is that it enters into the constituent process.

There may be others, less influenced by the power of the status quo, and the allure of pragmatic positions, who advocate for transformation on a grander scale and are successful in that endeavor. My engagement with history, understanding of social transformation, and the complexities of the contemporary nation-state have led me to believe that a continuous agitation for greater justice has a greater probability of resulting in social transformation than idealistic aims that necessitate immediate and revolutionary change, even if they are theoretically better options.

In addition to theoretical positionality on the incremental-transformational spectrum, a brief note on the researcher-practitioner spectrum is worthy of mention. Li (2007: 2), an anthropologist who studies international development, argues that the practitioner and critical academic roles are distinct and separate, and that the former is not in a position to

make programming an object of analysis. I have spent more than a decade as a practitioner, and have continued to do so throughout my doctoral studies. I do not believe this bars critical thought, and in many ways continued engagement has furthered my critical analyses. Li is someone whose work and opinions I greatly respect, and it was therefore encouraging to align myself with critical scholars who also disagreed with her stance on the researcher-practitioner dichotomy. Roy, Negrón-Gonzales, Opoku-Agyemang and Talwalker state “we depart from Li on one significant matter of expertise and politics... we are reluctant to conclude such a firm separation between the trustees and recipients of development. Instead, we interpret the mediators and functionaries of development – from star economists to young volunteers – to be engaged in the battle of ideas. Instead of positioning critics as those situated outside of development, we seek to explore how those within the system can participate in such struggles” (2016: 46). I have continued to practice development while researching it in order to proactively and purposefully engage not only the ideas but the processes, power and politics of development.

The chapter that follows (Chapter 5), outlines the methodology developed for this research, the Stages of Food Security methodology. As it is new, I have outlined the steps undertaken in detail so as to enable other researchers to draw upon this method, and utilize or adapt it as necessary for their respective contexts and objectives. In addition to outlining the limitations and risks involved, Chapter 5 adds two key contextual sections. The first, which is less common than one might anticipate, is a presentation of the process I undertook to obtain ethics approval of this research from Ethiopian authorities (in addition to ethics approval at the University of British Columbia). In presenting this information, I hope to offer procedural context as well as make a case for the importance of obtaining national ethics approval. The second addition to Chapter 5 that is less common, is an addition that outlines the broader socio-political events that occurred during the fieldwork period and how these events may have influenced the research process and research findings.

CHAPTER 5. METHODS

There is a significant amount of information available about food security worldwide. For example, the Food and Agricultural Organization (FAO) of the United Nations, along with national governments, conduct regular food security surveys, and the Famine Early Warning System Network (FEWS NET) publishes regular reports on indicators and projections to support the prevention of famine. This data has provided a wealth of information about the trends and extent of food security in Ethiopia. In conducting national or regional surveys, which require a degree of consistency of metrics for aggregation, information that is essential for understanding the complex causes of food insecurity may be lost (Chambers, 2008). In addition, the selection of metrics, such as how many meals are eaten in a day, shapes the type of findings that emerge (Cochrane and Thornton, 2016), which may result in the exclusion of crucial information, such as the composition of the meals, and cause unintended outcomes, such as entrenching intra-household disparity by not understanding the distribution between family members. As outlined in Chapter 4, the existing methods and metrics are valuable, despite their respective challenges, and have all contributed to the understanding of the scale, trends and extent of food security.

The Stages of Food Security methodology developed over the course of this research complements existing approaches by adding new insights, asking different questions, and asking old questions in new ways. It provides a way in which contextualized, locally-specific qualitative and quantitative information can be integrated with existing data, with a specific aim of enhancing policies and programs that strengthen food security.

Within Ethiopia, rural smallholder farmers have been offered extension services and agricultural inputs for at least half a century, yet according to the literature the uptake and adoption of these services remains low (Bonger, Ayele and Kuma, 2004; EEA/EEPRI, 2006; Gebrehiwot and van der Veen, 2014; Spielman, Mekonnen and

Alemu, 2012; Taffesse, Dorosh and Gemessa, 2012). This methodology draws upon the work done by the Government of Ethiopia, the FAO and FEWS NET, and uses a participatory, co-production approach to analyze policies and programs, with a view to exploring opportunities for improving them, or for proposing new ones. As Burns and Worsley (2015: 51) point out, the “data upon which policies are based is often aggregated to give synthesized statements that indicate how many people are affected, but gives little sense of why these symptoms occur.” The Stages of Food Security methodology provides insight into symptoms, so that programs and policies can be tailored, targeted and made more effective.

For the purposes of this research, I selected three communities that shared a common agroecology, livelihood practices, ethnicity, language, and, largely, religion (two sects of Christianity comprise the overwhelming majority, however divisions between these sects ought not be undervalued). The three communities are used to compare the impact of location, particularly access to services and infrastructure. Long-term analyses of poverty and growth in Ethiopia indicate that the factors offering the greatest benefit to the poorest residents of Ethiopia include infrastructure, such as roads, which are unequally developed, as well as services, such as extension services, which have a much broader coverage (Dercon, Hoddinott and Woldehanna, 2012). In these three communities, different types of arrangements are compared to provide insight into the community-level impacts they have upon food security.

The first community, Adeaaro, is located within walking distance of a town (three to seven kilometers, depending on location within the community). Because of its location, community members have relatively good access to healthcare, markets, secondary education, and transportation. There are no asphalt roads in the community, but residents are within walking distance to one, enabling greater access to the buying and selling of goods, as well as to daily and short-term work. The second community, Adea Ofa, is more remote. It is located twenty kilometers from the nearest town and though it is possible to walk that distance in a day, carrying goods requires transport, commonly using a donkey-drawn cart. Access to healthcare services beyond the very basic ones provided at the local health post are limited and costly. Access to education beyond

Grade 4 and to the market are similarly limited. While it is possible for vehicles to access Adeaaro, much of Adea Ofa is not accessible by vehicles, and is limited to motorcycles or animal transport.

The third community, Buge, was selected in order to include the portion of the community that has irrigation infrastructure, a service uncommon in Wolaita Zone, and rural Ethiopia broadly. Those households in Buge with access to irrigation are largely located on one side of the community, which is divided by an asphalt road. This subsection of the community obtained access to irrigation approximately ten years ago as a result of an international development project. The asphalt road enables access to markets, education and healthcare. The Stages of Food Security methodology included these three communities in order to compare and contrast differences that exist within and between them. The stages were designed to provide insight into the role of access to goods and services as it relates to food security.

This research has identified an area where an insufficient level of knowledge exists, and where a contribution to knowledge could be made. Dr. Gecho, from the Department of Rural Development and Agricultural Extension at Wolaita University in Ethiopia, stated that the "research objectives are very important and no one [has] conducted such kind of study in Wolaita Zone ... [it] can also give direction for further research, extension and development schemes that would benefit the farming population" (see Appendix 1). One of the key findings of the Africa Climate Change Resilience Alliance (ACCRA), in the context of supporting adaptive capacity at the local level, is that development interventions "need to do more to support people's own agency" (Ludi, Tesfaye and Levine, 2011:4). As highlighted by Dr. Gecho, and confirmed by the existing literature, there is a lack of micro-level qualitative data driven by community members' own experiences and priorities. This inquiry-driven and community-based approach fills important knowledge gaps and contributes to collective understandings about the dynamics of food security at the community level. The research was also supported by governmental authorities, researchers at Addis Ababa University, Hawassa University, Wolaita Sodo University and the Forum for Social Studies. Engaging with these individuals, organizations and universities, it became clear that this research has already

contributed to expanding our understanding about food insecurity in rural Ethiopia. One example of this ongoing impact is that during 2016 I was invited to present at a national workshop on agricultural policy. However, the development of new, and the strengthening of existing, services for smallholder farmers in rural areas will take much more effort with (and by) governmental staff in order to contribute to lasting change.

Before proceeding on to the details of the methodology, it is worth reflecting on some of the terminology used, and in particular the concept of ‘adoption’ that I utilize frequently. I am in agreement with Glover, Sumberg and Andersson (2016) that ‘adoption’ can imply an assumption of superior knowledge, reminiscent of colonial attitudes. It is also a concept that, if taken alone, can be “too linear in both spatial and temporal terms, too binary, too focused on individual decisions, and blind to many important aspects of technological change” (Glover, Sumberg and Andersson, 2016: 4). As this methodology demonstrates, I do not assume that advocated change is necessarily the most effective or appropriate. Rather, as this methodology outlines, we need new approaches that will inform policy, programs and services so that supports align with the needs and priorities of those involved. When utilizing ‘adoption’ as a concept, it is one which I believe can also be utilized as a means of challenging assumptions, for example in showing that farmers adopt components of packages or reject services entirely. The participatory, co-produced basis of this study is embedded within the environmental, historical, political, socio-cultural and economic systems that reflect lived realities. Glover, Sumberg and Andersson (2016) argue that there is a need for a new concept, to replace adoption; I have utilized the adoption concept and embed it within a much broader qualitative and quantitative study. This does not address all concerns raised by the ‘adoption concept’ but it recognizes its contested nature and reframes the term.

5.1 STAGES OF FOOD SECURITY

The Stages of Food Security methodology builds upon the academic work of Krishna (2004, 2005, 2010) as well as my personal experience working with communities in Ethiopia over the last decade. Krishna, a professor at Duke University and former development practitioner, developed the Stages of Progress methodology to understand the dynamics of poverty, and specifically a methodology that would assess the extent to which individuals overcome, or fall into, poverty, and the causes of those changes. As development studies expanded its investigation into the dynamics of poverty, the Stages of Progress methodology reiterated that those experiencing poverty are not a static group of chronically poor individuals. Rather, Krishna's (2010) work helps to highlight that those experiencing poverty are a more dynamic group wherein significant numbers of people are overcoming poverty, while almost as many are falling into poverty (Krishna, 2010). The methodology has been applied on four continents, in an array of diverse countries and settings.

In the Stages of Progress methodology, the 'stages' were defined by community members in a participatory process, and the causes of the changes were analyzed using a series of interviews about historical points of time. The findings were used to recommend policy that would provide the necessary supports so that individuals would not fall into poverty and provide greater access to the opportunities that assisted individuals to overcome poverty. However, the studies have also found the existence of a glass ceiling. While many were able to overcome poverty, there were significant limits on the potential for economic advancement, indicating that structural and systemic inequalities have to be addressed in order for socio-economic transformation to occur.

In comparison to Participatory Rural Appraisal approaches, such as that done by Tsegaye and Struik (2002) in southern Ethiopia, the Stages of Progress methodology places a greater emphasis on community participation in the research process and the codification of the steps. While the research of Tsegaye and Struik (2002) used participatory wealth ranking, sought input on indicators and conducted relative wealth

ranking, it provided limited detail about the processes involved, such as who was included and the representativeness of the determined categories. Alternatively, Krishna specifies how the Stages of Progress methodology takes place, in what ways diverse experiences are included and how verification occurs. In some regards, one might consider both the Stages of Progress and Stages of Food Security as expanded and more developed Participatory Rural Appraisal methodologies, which place an explicit focus on participation and co-production.

Key to Krishna's methodology is the localization of poverty. Community members themselves determine the factors that ought to comprise a 'stage' from relative poverty to relative wealth. The contextualization of the metrics in this fashion enables the analyses to reflect dynamics relevant and appropriate to that specific place and time. In contrast, national surveys conducted by governments use metrics that apply to a much broader array of livelihoods, economic situations and agroecologies, resulting in metrics that can be applied generally, and therefore may exclude essential nuance. For example, relative to the country as a whole, the majority of the population of a sub-national region may experience chronic poverty. In such an instance, the survey may indicate that the majority of the population lives in chronic poverty (at or below \$1.25 per day using purchasing power parity). Within that population, however, there are significant relative differences. The localization of poverty can capture these differences, based upon community-determined metrics that are relevant and appropriate to their lives. In addition to identifying relative differences, the participatory process may identify factors and metrics that are not commonly included in other studies, providing new insight into the complexities of poverty and the means to assess it.

In addition to the work of Krishna, my experiences in Ethiopia have shaped the ways in which I have developed the Stages of Food Security methodology. One of these distinctions is a geospatial component, which recognizes that differences may be significant within a region based on accessibility to services, infrastructure and markets. The analysis thus places a focus upon place-based comparative studies in order to analyze the impact of location. Building upon Krishna's work, this model expands the types of research questions being posed and enables community members to co-create the

questions and the metrics. It also creates opportunities to correct errors, provide greater context, and highlight interconnections that may have otherwise been missed.

Qualitative studies provide a wealth of contextualized and locally-specific information, yet are often not used to inform policy and programs because they tend not to speak the 'language' of decision makers. The Stages of Food Security methodology, which explicitly seeks to inform policy and programs, addresses this challenge by using a mixed-methods approach that draws upon qualitative and quantitative processes. Akin to what has been advocated by Chambers (1983), the methodology utilizes co-production so that the ideas, experiences and priorities of community members can shape the research questions and the ways in which measurements are made. In order for the co-production process to be productive, the researcher needs to be well versed in the socio-cultural, economic, historical, and political context within which the research takes place. I had already been working in Ethiopia for about five years at the time of the field work, which was enhanced by detailed studies of the secondary literature on traditional livelihoods, policies, programs, services and agricultural intensification efforts in the research area. Other researchers who adopt or adapt the Stages of Food Security methodology may opt for an ethnographic period of study before starting the steps outlined in the section that follows. Having a researcher who is fluent in the lived realities of the individuals within the communities where the research is conducted enables the co-production process to be a two-way learning process, rather than a one-way extraction of information, or simple facilitation.

There are six key steps within the Stages of Food Security methodology, including: (1) contextualization, (2) community perception and survey development, (3) household survey, (4) verification, (5) replication, and (6) engagement. This section will outline each of these steps in turn, as they relate to the research that was undertaken (summarized in Figure 5.1).

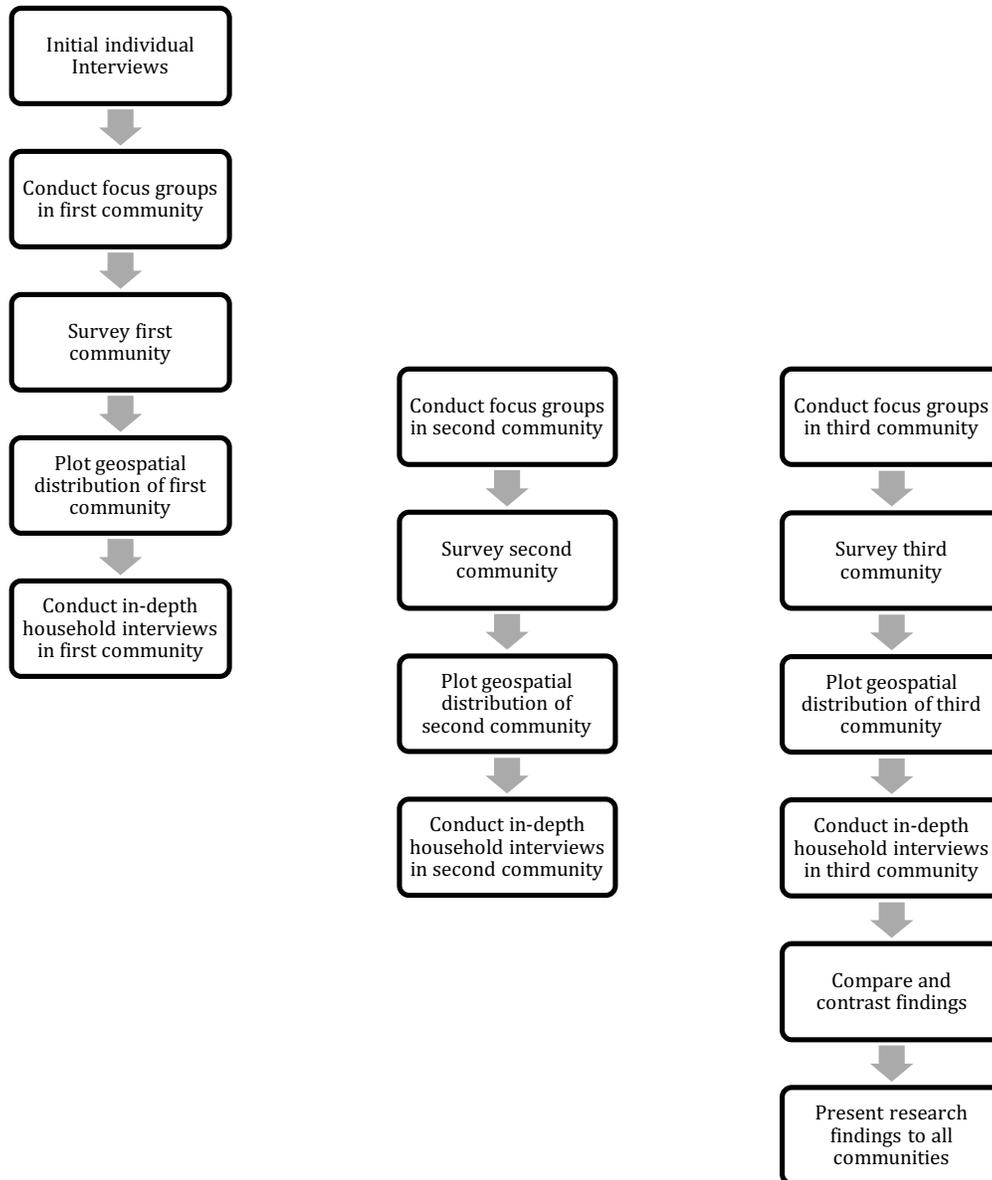


Figure 5.1 Flow Diagram of Research Activities

Step 1: Contextualization

A series of semi-structured interviews were conducted in order to gain insight into vulnerability to food insecurity, the ways in which food security has been strengthened and the opportunities that exist for policy and programs moving forward. Interviews were

conducted with governmental employees at the national, regional, zonal, district and community level, as well as with NGOs (Concern International, Forum for Social Studies, International Food Policy Research Institute, Save the Children) academics (Hawassa University and Wolaita Sodo University) and (semi-)private entities (Ethiopian Commodity Exchange, community cooperatives). Within communities individual smallholder farmers were interviewed as well as agricultural extension workers. The interviews focused on the level at which the individual operated, such as community level program implementation or national policy making, and were conducted in order to contextualize the research area, research questions and experiences regarding food security in rural areas.

In the research design, it was estimated that the contextualization phase may include ten to fifteen interviews; in total I conducted eighteen. Part of the reason the range was on the higher end of the spectrum was the delay of federal government ethics approval, during which time I was able to conduct additional contextualization interviews. The number of interviews is arbitrary, and although some research outlines a level of 'knowledge saturation' (Bowen, 2008; Glaser and Strauss; 1967; Guest, Bunce and Johnson, 2006), I believe that researchers will never reach a point wherein no new insight is obtainable; rather one should seek sufficient confidence of knowledge to speak fluently about the issues at hand. I have a moderate spoken level of Amharic, the national language, and interviews conducted with national and regional government employees were either held in English or Amharic. However, the interviews held within the three community research areas were conducted in a local language, *Wolaitenya*, and interpreters were used. The interpreters were trained before the research was conducted, including about the ethics of the work (including a signed agreement of confidentiality), as well as the objectives and processes.

Step 2: Community perspectives and survey development

Following the approach developed by Krishna, the Stages of Food Security methodology attempts to have the priorities, experiences and ideas of community members shape the

research questions, process and results. The co-production components of the methodology begin in this second stage, in which community members and I co-created the household survey, including the questions as well as the metrics. Within each of the three communities, there were two parallel sessions for men and women. The times and places were determined according to the preferences of community members. Each group met more than once, allowing me to provide feedback about some of the gendered components of the research to the other groups in a non-confrontational way. Advisors from local universities suggested the focus group be twenty people, I found this too large to enable space for everyone to have their voice heard and have their opinions expressed. In practice, the amount of participants ranged from ten to fourteen.

Recruitment of the participants was done informally. Within communities I explained the objectives of the focus group and regarding their ability to participate. The informal recruitment specifically sought to ensure a diversity of socio-economic statuses within the group, and thus I made efforts to invite individuals that would ensure a broad representation. This process did not work in one community, where upwards of sixty people attended. Accordingly, a more tailored invitation process was utilized, with the support of local researchers and agricultural extension workers. Children and minors under the age of eighteen did not participate, and the focus of the invitations to participate was on those who were primarily engaged in agricultural activities.

In the promotion of the focus group sessions, and at the outset of each session, the objectives and processes were outlined. In addition to informed consent for participation, this discussion enabled participants to have a clear picture of the broader research project, where and how the information would be used, and the project's objectives. While this process should be common practice, some participants complained of researchers who come into their communities, collect data and depart, leaving community members wondering what the information will be used for. On more than one occasion I had lengthy discussions with community members about how local, regional and national governments have used information to make choices about programs and services, agreeing that it was our intention to co-produce information that would similarly inform decision makers in order to support the strengthening of food

security. Knowing the objectives and processes also provided a degree of motivation for greater participation, as well as for continued participation as each focus group met three or four times (including the feedback session about the results of the household survey).

The first focus group session, in both the male and female groups, sought to identify discrete stages of food security, which were defined by specific metrics proposed by community members (the details of these stages differed in each community, and are outlined in Chapter 6). I had initially envisioned four or five stages, as Krishna had done. However, community members preferred to have three stages: the relatively food secure, the average and the food insecure. As anticipated, there was an initial debate about the usefulness of these factors and stages, since there were inevitably exceptions of people who had some factors indicating relative food security, such as large land holdings, but were food insecure. In each session, this process developed organically and moved towards an agreement that we would focus upon the general trends, and not the exceptional cases.

One of the challenges of discussions about food security is that there tends to be a focus on a few limited factors, often those emphasized in national surveys, such as land size and livestock holdings. However, the co-production approach taken in this step supported conversations that arrived at more nuanced and detailed conclusions. In many instances this occurred as I posed open-ended questions for discussion. Some of these questions, as outlined in Cochrane (2017a), included:

- What is the most appropriate measure of food insecurity (by days, month, type)?
- What are the gendered expressions of food insecurity? (also age, ability, ethnicity)
- Which crops are grown by the three groups? Do they serve different purposes?
- Are there specific crops that require additional attention (fruit trees, cash crops)?
- Does access to improved seeds and fertilizer differ for the three stages?
- Is there a difference in the access households have to extension services / training?
- Are there differences in amount sold to the market and consumed by the household?
- What about other assets (improved housing, radio, mobile phone, electricity)?

- What about household-level context (number of dependents and number capable of work)?
- Does the level of education obtained in the household affect food security?
- Are indirect measures related (ability to pay for healthcare and education)?
- Are there programs serving the poorest member of society, and how are they selected?
- Is migration (skilled or unskilled) linked to the food security situation?
- What are common non-agricultural livelihood activities, and do they differ by stage?
- Does access to credit and level of debt differ? Who receives remittances?

While the above questions are not listed as prescriptions for anyone implementing the Stages of Food Security methodology, they are examples of how the researcher can encourage more contextualized and diverse discussions. At the same time, community members raised their own issues, priorities and questions, resulting in a two-way learning process. In Section 4.2 I describe how my own assumptions were challenged and changed as a result of this process.

As the factors affecting food security were proposed, I encouraged the focus group participants to think about the spectrum of the three stages of food security and where each factor might fit, or to what degree it would apply for each stage. Some metrics can be drawn directly from the proposed factor, such as land size or number of livestock, others require discussion about what an appropriate metric would be. An example of the latter is migration: How would we differentiate between types of migrants, and between different forms of migration? The groups grappled with these questions and proposed metrics they felt represented their vision of how that factor ought to be measured. Another important component of the initial focus group meeting, or the second one if needed, is why the differentiation between factors exists. This line of discussion moved the conversation away from the specifics of individual households to the broader, systemic issues that affected food security. The conclusions of these discussions provided unique insight into the enablers and barriers for change, which transitioned into a conversation about how vulnerabilities could be reduced and opportunities strengthened.

In some communities, the above-described process took place within a single three to four hour focus group meeting. In others it required two meetings. The number of meetings is less important than the completion of the process. After having had the initial conversations with the male and female focus groups, I synthesized the information to develop a draft survey. In addition to the questions and metrics determined in the focus group discussions, I added a number of questions to the survey that related to location, for comparative purposes within and between communities, and time, which compared food security situations of the present to ten and twenty five years past. A follow-up focus group session presented the draft survey for feedback, adjustments and refinement. When translation is being used, as it was in this research process, this follow-on focus group discussion is particularly important to ensure the terms have a shared meaning, and one that appropriately captures the crux of the factors and metrics proposed. The differences that emerged within communities were discussed in the follow-up sessions, enabling for agreement on the questions and metrics to be included. However, across the communities, this was not always the case. For example, in Adea Ofa questions about mango and avocado trees were viewed as unimportant for them, whereas landholdings were much smaller in Adeaaroo. To address this challenge, we opted to add questions (even if they lacked relevancy for all communities) and utilize a common scale, rather than conducting different surveys. Conducting community-specific surveys may have enabled even greater specificity to emerge about within-community differences, but would have limited the ability to compare across. For this reason, a single survey, inclusive of factors for all three communities, was used.

The form of participatory engagement with communities in this research took the form of co-production. Participation, as Burns and Worsley (2015: 46) outline, is a “prerequisite for change in complex social systems.” As participants in the process, community members contribute their knowledge about the dynamics of food security, and the broader systems within which it exists, which are based upon their own experiences. The knowledge, ideas and priorities of community members also provide insight for identifying areas where action would be appropriate and effective. However, participation is not just about a better research process. People “have a right to be heard and a right to engage in the issues that affect their lives; and when people feel that they have a personal

investment in a process, this leads through networks of social relationships to strong community ownership” (Burns and Worsley, 2015: 46). At the same time, I am cognizant of the “global web of unequal relations” that shape the interactions between researcher and participants and do not posit that a co-produced, participatory approaches result in power balances (Farmer, 1999: 6). Nonetheless, for effective action to be sustained, and for that action to increase in scale, participation “can be seen as a foundation stone” when working in complex social environments (Burns and Worsley, 2015: 46).

The Stages of Food Security methodology is not entirely participatory and co-created. As the first two steps outline, some components are co-produced while others are not. One of the limitations of doctoral research is that research questions, proposals, ethics reviews and funding are contingent upon having a detailed research plan before starting, thus negating the opportunity for co-design of the research project. In addition, I have opted not to use participatory, co-produced processes for all components, but rather to use co-production purposefully in respecting the time of community members. I have taken this approach based on the literature about participatory approaches, which can misplace burdens onto community members (Cooke and Kothari, 2001). I agree with Hurlbert and Gupta (2015) that participation should be viewed in light of the questions being posed and the tasks required, rather than as a processes that ought to be applied in all places, at all times, for all purposes.

The methodology utilized in this research includes both participatory, co-produced processes and non-participatory processes. For example, the focus group discussions utilize participatory approaches to co-produce the household survey, while the implementation of the survey is not done in a participatory fashion, meaning that community members were not expected to participate in conducting the survey. In recognizing that community members have busy agricultural livelihoods, and respecting their time as valuable and limited, the time burden of conducting a household survey was not placed upon community members. In the focus group settings, participatory and co-production approaches enable collective learning, a process wherein community members may become newly aware of the extent of some issues, which were previously less clear or not discussed in public forums. In this research process, debt was an example

of community learning. Everyone knew that borrowing was common, but it was not an issue that was commonly discussed as a community. In addition, the purposeful use of participation in this research allows the opinions, ideas and priorities of community members to determine the direction of the research. The result is that the strengths, opportunities, challenges and barriers, as understood and experienced by community members, are explored in the survey. The questions and metrics are localized and contextualized using participatory approaches, a process that can highlight unknown, unseen or undervalued aspects of lives and livelihoods (Chambers, 2008). At the same time, however, it did not require participation in every component.

Co-production was used purposefully, as opposed to community-driven or community-led approaches. The reason for this is that community members and researchers can engage in a two-way dialogue and learning process to explore nuances of the complexity and interconnected nature of food security. Based on past experiences conducting similar processes in rural Ethiopia, community members may not explore some issues that are socio-culturally or politically sensitive. This might include gendered labor burdens and gendered distribution of resources, or who has access to irrigation and why. However, the issues need not be sensitive to be excluded from mention. For example, some aspects of livelihoods that are normalized or routine for a particular community, but are specific to that region, may be taken as a given, such as the role of specific crops during times of food insecurity. In the research areas this was experienced with the root crop enset, which was absent from the initial listing of crops in focus group discussions by community members. Co-production allows the researcher and community members to engage as fellow participants, each contributing their thoughts and reflections. It was my contribution that raised enset as a consideration in the conversations. After raising the issue, as enset was visible in all directions, we delved into a detailed conversation about its role and uses. While the researcher's knowledge has biases and limitations, the discourse between the community members and researchers can address a wider range of issues in more complex ways. During the co-production process, two-way learning is facilitated, and thus space for transformative learning is created.

Step 3: Household survey

Using the survey that was co-created and refined in focus group sessions, I hired a team of data collectors to support the survey implementation. The three selected communities were somewhat different in composition, and therefore some explanation of the process of surveying is required. In the Ethiopian administrative system, Wolaita Zone is composed of districts (*woredas*), which are composed of sub-districts (*kebeles*), and within each sub-district there are less formal divisions into communities / neighborhoods, typically into thirds. The decision of opting to work at the scale of communities / neighborhoods was due to the population involved: Wolaita Zone is home to almost 2 million people, the districts within it range from 110,000 to 210,000 people (excluding towns), and sub-districts range from 2,300 to 10,600 (excluding towns). Conducting research at the communities / neighborhoods scale enabled participation that reflected the size of the area being studied. The selection of the communities / neighborhoods within the three sub-districts reflected the goals of the research project (to compare geospatial factors): in Adeaaro the area was nearest to the Boditi town, in Adea Ofa it was the community / neighborhood furthest from Boditi town, and the selected households in Buge were those households with access to irrigation.

The surveying process in this implementation of the Stages of Food Security methodology experienced sampling challenges. It was anticipated that the local administration in each community (*kebele* office) would have a registry, such as household numbers or family names, from which a random sample could be drawn. However, no such registry existed. In addition, the office did not have exact figures on the number of households within each selected community (an estimation of 200 was given). Based on the estimated community sizes in Adeaaro and Adea Oda, household surveys were conducted with an objective to survey three quarters of the households in each community (151 and 150 households surveyed respectively). A similar estimate was made for the households with irrigation in Buge, based on the estimated number of households that had access to primary or secondary irrigation canals, resulting in 100 households surveyed.

Since there was no registry to draw a random selection from, the surveying proceeded using a patterned approach, with every fourth household being passed by. The pattern-

based approach to surveying is less than ideal, but given the lack of alternatives, was determined to be the best available option. One of the means used to reduce the potential bias was by aiming to survey three quarters of the entire population being studied. This presents limitations. Due to the lack of a probabilistic draw from a sampling frame, it is not possible to estimate the standard errors for the data generated. This limitation particularly affects the inter-community comparisons outlined in Chapter 6.

Three data collectors were employed to support the surveying process. All were experienced surveyors and were provided additional training on about confidentiality. The surveyors were native speakers of the local language, which was used when conducting the survey, and results were coded in either English or Amharic. The training also included a team meeting in which we went through each of the questions and had an opportunity to discuss them in detail to avoid misunderstanding and to ensure consistency. Since some of the questions related to household finances, the surveyors were intentionally selected as not being members of the community, because research indicates that community members are less willing to share financial details with individuals from within their community (Sana, Stecklov and Weinreb, 2012).

Based upon the household survey results, it is estimated that the area surveyed in Adeaaro had 336 households at the time of the survey (average household size was 5), resulting in a survey coverage of forty five percent. Due to more frequent temporary and seasonal migration the average number of household members appears low (in comparison to the surrounding communities it had the lowest household size, thus affecting the estimated number of households in the community). In contrast, it is estimated that Adea Ofa had 168 households (average household size 7.5), resulting in coverage of eighty nine percent. The focus in Buge was only those with access to irrigation, which was approximately 140, or seventy one percent of the households surveyed. The survey coverage rates are based on retroactive assessments based on reported average household size. This data was unavailable when determining the number of households to survey, resulting in Adeaaro and Adea Ofa having targets of 150 surveyed households, and Buge 100. These figures were based upon estimates of households provided by community administrators.

One of the limitations of the surveys is that mainly the head of the household and others primarily responsible for agricultural practices were interviewed. Many interviews were conducted in a family-based setting, where multiple individuals within the family contributed answers. This approach was taken because the focus was largely on household assets, challenges, and opportunities, and not intra-household food security dynamics. In addition, since government services are provided based upon the household as a metric, using this measure allows the findings to ‘speak the language’ of decision makers. In the gender segregated focus group discussions, it was evident that gender issues were important considerations for food security, which are discussed in Chapter 6. However, a limitation of the methodology employed was that the household survey did not capture differences between men and women within a household, nor the differences between children and elderly members and other factors of social differentiation, such as health status and birth order of children. Future research would strengthen the findings presented here by explicitly exploring intra-household dynamics of food security. In future implementations of the Stages of Food Security methodology, I would encourage researchers to survey based on key issues of social differentiation, which would enable the disaggregation of intra-household dynamics.

In the initial research proposal, I had wanted to map food security status, based upon the stages determined in the focus group discussions within, as well as between, communities. I explored a number of global positioning system (GPS) based options for doing this. However, in Adea Ofa and parts of Adeaaro there was no cell phone reception, and therefore it was not possible to use internet- or cellular-based technologies. The alternative was a satellite GPS. However, providing these tools to all the data collectors was beyond the financial possibility of the research project. As a result, place-based differences within communities were not analyzed. However, a series of participatory community-based maps were created as a means to understand land fragmentation over time.

After the household survey, in each of the three communities, a random sample of ten percent of surveys were verified to ensure data accuracy. This step proved extremely valuable for validation because it identified a few key errors, which were rectified prior to

analysis. For example, one surveyor was collecting data in hectares, while the questions were seeking land sizes in *temut*, the most commonly used land size measurement. A *temut* is one-quarter of a hectare, thus significantly altering the land size data results. The verification step also helped to identify poor program implementation. For example, a household experiencing food shortages in every month of the year was not included in the Safety Net, to which the local government staff responded that “there were some intake issues.”

A much more problematic issue was identified by the verification process in Adeaaro. In this instance, one of the surveyors assumed that validation would not occur (which is unfortunately common) and falsely entered positive data regarding questions that reflected the work of the agricultural extension staff. He said that he was pressured to do so by the lead development agent in the community. After identifying these issues, the entire data subset was re-done, using a different surveyor. This experience not only emphasizes the importance of household level verification, but also the ways in which data can be influenced. It is common that surveys in Ethiopia are conducted by government agricultural extension staff, as it is argued they have detailed local knowledge and offer a low-cost route for large-scale household surveying. However, this instance highlights the fact that extension staff are cognizant that some questions reflect their own performance, and are therefore altered. Since this experience, I have had lengthy discussions with multiple organizations using government personnel for household surveying about the inaccuracy and biases that can emerge as a result.

Step 4: Replication

The replication step was a repetition of Steps 2 and 3 in additional communities. In this research project, a total of three communities were selected. However, other implementations of the methodology may add as many sites for replication as needed. In this project, Step 1 did not need to be repeated because the communities were in the same district. The replication process enables comparing and contrasting of differences that exist between communities, which in turn allows for an assessment of the impact

geospatial differences, and specifically differences in access to services and infrastructure. A process flow diagram of the replication process is outlined in Figure 5.1.

Step 5: Verification

Upon completion of the household survey, I conducted a brief analysis of the data according to the stages, factors and metrics proposed in the focus group discussions. With those results, I conducted a series of follow-up focus group discussions in order to receive feedback on the results. In some instances, participants disagreed with the results, while in others fruitful discussions explored the findings in greater detail. As a participant in these conversations, I found that the disagreements did not necessarily imply that the data was false. Instead, these conversations opened avenues for new explanation, which supported the development of additional, unplanned research activities, outlined below. While fruitful for providing supplementary qualitative data to support the household survey, these sessions also act as a quality check mechanism to verify that the findings align with the experiences of community members. Having multiple sessions within and across communities, provides a means of triangulation. The process of verification was an important stage of the learning process. For example, the poorer members of communities did not fully know the extent to which inequality existed within their communities. They were surprised not by the averages of assets, but the minimum-maximum spreads, such as the number of livestock and fruit trees, size of land holdings and credit access. For some individuals, this information was not only surprising, but also raised concerns about how goods and services were being distributed in a way that fostered increasing inequalities.

The verification step also included a re-visiting of interviewees from Step 1. I was not able to re-interview some individuals, and added others as replacements, who would be able to speak to the emerging findings. An example of this is the Central Statistics Agency and the Zonal Health Department. There are two purposes of these follow-up interviews: verification and information sharing. As with the focus group discussions, the preliminary results were presented to interviewees for their feedback. Some of the issues that emerged

from the household survey were known, others were not. An example of the latter were issues with accessing credit, levels of debt, who was excluded from agricultural services and the extent of chronic food insecurity. What was sought from these interviewees, particularly government employees and NGO staff, were their reflections on potential avenues for policy and programming to strengthen food security. Insight from NGOs that had worked in the region for decades, such as Concern International, were particularly useful.

Step 6: Engagement

The concluding activities of the research process revolved around engagement within and beyond the communities. The activities within communities, and their impacts, are explored in Chapter 8, as they relate to the third of the key research questions driving this research. What distinguishes this component from Step 5 is that the activities move beyond sharing information and advocate for specific changes with community members, or using the messages proposed by them. As previously mentioned, some of the activities include being invited to participate in a national workshop, publishing a range of articles and book chapters, including with a national publisher, and engaging broader audiences with blogs, briefs and videos. Putting knowledge into action and ensuring research is used is a complicated task, the limitations of which are particularly challenging when the issues are highly politicized, and in many instances implemented for political purposes, resulting in layers of disincentives for change. Other barriers relate to capacity: in the ideal scenario all people would have access to irrigation infrastructure, but, unfortunately, the Government of Ethiopia does not currently have the capacity to do this.

There were limitations to this engagement, particularly related to my own time in Ethiopia after the research was completed. Much more could have been done. Similarly, while the focus group sessions provided avenues for learning, there are limitations regarding the extent to which the knowledge obtained in the research is accessible to those who participated. Some of these barriers relate to a lack of internet connectivity, telecommunication and electricity, others relate to barriers of literacy and yet others to a

lack of shared public space wherein the content could be freely accessible by all. One success was my working with researchers at Wolaita Sodo University, the nearest university to the communities, and in particular my partnership with Dr. Gecho. This faculty member is from the district where the research was conducted; he conducted his doctoral research in the area and is well known there. This provided me with greater accessibility to knowledge and created a limited form of a knowledge broker who community members could call on for support. However, as with the advocacy component, the limitations also lie with my own time availability, resources and personal commitments, resulting in my time in Ethiopia during 2016 being too brief to achieve more.

Additional activities

In addition to the originally planned activities, new activities arose as a consequence of the participatory research process. Five key additions were made, the methodological components of which will be briefly outlined here. The five additions were: (1) a household debt survey, (2) an investigation into climate change, (3) qualitative research on gendered, youth migration, (4) participatory community mapping to understand land fragmentation, and (5) research on the Productive Safety Net Program.

The household debt survey was conducted in the same fashion as the household survey described in Step 3 above. For the household debt survey 300 households were included, from the same communities / neighborhoods in all three of the *kebeles*. This survey was conducted at a different time, with a similar percentage of households in each community, but not necessarily the same households. This survey sought to understand the extent, nature, sources, and frequency of borrowing and debt within the three communities. The sub-topic emerged out of the focus group discussions, and was emphasized by community members as being a key factor affecting food security. This was not anticipated at the outset, and is an area that has been under-researched in rural Ethiopia to-date. When I spoke in 2015 with Dessalegn Rahmato, a prominent social scientist in Ethiopia, and inquired about research on smallholder debt, he explained that

he had only seen anecdotal reports of debt and was not aware of any surveys collecting data on rural debt.

A second key issue that emerged from the research process was the role of climate change, particularly rainfall variability. In order to analyze these trends I acquired meteorological data from the National Meteorological Agency of Ethiopia, which had over forty years of monthly rainfall and temperature data for Wolaita Zone. To complement this information, twelve semi-structured interviews were conducted, in the three communities, to explore the experiences of climate change, and the impacts of these changes. Interviewees were randomly selected in the communities, the only selection criteria was to identify houses of different socio-economic status, offering a degree of representation of these differences.

The gendered nature of youth migration from rural communities was the third additional area of research. As mentioned above, migration was included in the focus group discussions and the household survey, but was limited to the perspectives of those within the communities, not the migrants themselves. The additional research activities sought to gain insight into the gendered nature of migration from those who had migrated. Ten youth living in a single city, Sodo, were interviewed in a semi-structured format, half of which were male and half female. Interviewees were selected based upon a snowball style set of interviews with people who had migrated from the specific district where the research was conducted. I specifically sought out interviewees who had migrated for skilled labor jobs as well as others who had migrated for unskilled labor work.

The fourth additional research activity emerged as a response to a question posed by Dessalegn Rahmato in his manuscript about development activities in Wolaita Zone (2007). In that work he analyzed the landholding size that is suitable for basic household self sufficiency, a size beneath which the smallholder enterprise is no longer viable. Based on the process of land inheritance, and therefore fragmentation, he proposed an approximate decade when the average land size declined below the minimum threshold. In reading work by Tania Li (2007, 2014), I was inspired to create community maps that would trace land ownership, potentially indicating a more precise time of when the generational fragmentation crossed the threshold. Rather than drawing upon average

land size, the community mapping exercise was based on specific households, mapping ownership and relationships of owners. For example, a group of properties owned by brothers or sisters, uncles or aunts, grandparents, can indicate the generation at which the fracturing crossed the threshold proposed by Rahmato.

The Productive Safety Net Program (PSNP) is one of the most important programs serving rural, food insecure residents in Ethiopia. During interviews and focus group discussions for this research, it became clear that while the impact of the program was largely positive (Berhane et al, 2014; Berhane, Hoddinott and Kumar, 2014; Gilligan, Hoddinott and Taffesse, 2009, IFPRI, 2013), the implementation was problematic. Based upon these findings, I conducted research in seven communities in two regional states to analyze the implementation processes. In the article presenting those findings, the communities remained anonymous to avoid negative repercussions (Cochrane and Tamiru, 2016), and to uphold that anonymity the sites will not be named in this dissertation. Protecting anonymity in the article included having all data presented as percentages, so as to not connect specific figures with the communities themselves. The interviewees included those who had “graduated” from the program, who were current clients of the program or who were governmental staff responsible for its implementation. Some of the specific findings are included in this work. However, the general findings about the co-opting of developmental programming to serve the dual objectives of social protection and political control are embedded throughout this work and shape much of my own thinking about the implementation of services in rural areas. This conviction is not only a result of this study, although it certainly reinforced it, but is built upon a detailed body of work that explores how political patronage and marginalization can occur within the implementation of programming and serve as a means to entrench political power and disenfranchise community members from any political participation (Chinigo, 2013; de Waal, 2015; Eyben, 2014; Ferguson, 1990; Gray and Dowd-Uribe, 2013; Li, 2007; Moseley, 2005; Planel, 2014; Scott, 1985).

The five additional areas of research that emerged reflect the strengths of using co-produced, participatory approach. Had the data collection tools been predetermined, these unique issues may not have emerged, or at least not in as much detail, or may not

have been given the importance assigned to them by community members. The additional research areas significantly contribute to this project, and to the subject broadly, as they are under researched areas for rural agricultural communities. In addition, these research questions added depth to the research project, specifically that of understanding why policies and programs are not working well, and why uptake of programs remains low.

5.2 LIMITATIONS

A series of limitations have already been discussed and will not be reexamined here, namely: a lack of co-production in the design phase, a lack of surveying based on social differentiation status, particularly around intra-household dynamics, the inability to geospatially locate households to enable comparisons of location-based differences within communities, and a series of limitations that emerged in Step 6 related to the engagement process. To this, I wish to add the limitation of site selection. The research sites were based upon a purposeful selection for comparative purposes, with one site near to market town, one with irrigation infrastructure and one in a remote location. This was justified based on the ability to compare food insecurity within and between communities and assess the factors that influence food security. However, in making this decision, a number of agroecological zones, livelihood practices, ethnic and religious groups, and infrastructural factors that exist within Wolaita Zone were not analyzed. As a result, some of the specific findings will only be applicable to one of the agroecological zones of Wolaita, to one of the livelihood practices, and arguably to certain ethnic and religious groups. The selection of three sites was due to limitations of time and resources. If future research is supported by larger funding and longer time periods, a much larger set of communities could be included in the study, which would provide a much richer data set and might highlight aspects of food insecurity that went undiscovered in this research.

A further limitation of this approach is its use of comparative case studies. While there are key differences within the selected communities (near to town, remote and with irrigation), it is not possible to assess the impact of all the potential influencing factors. An area identified for further research in Chapter 9 is the broadening of case studies in order to analyze the impact of other factors. For example, the impact of access to expanded healthcare options on food security. In this study, the impact of improved healthcare access difficult to disentangle from access to markets, as the market and healthcare services are both located in Boditi town. In recognizing this limitation, it is also worth noting that detailed comparative case studies offer valuable insight into contextualized processes of socio-economics, politics and relationships.

5.3 RISK MITIGATION

During the ethics application and approval stage, I outlined how risk would be mitigated during the research process. Primarily this revolved around governmental approval (at all levels), being transparent about the activities as they were ongoing, and by avoiding the confrontation of politics in a direct manner. The latter concern is an important consideration when opposition to the ruling political party has resulted in the loss of service provision (de Waal, 2015) as well as imprisonment (Amnesty International, 2014; HRW 2010a, 2010b). Another risk mitigation measure was that the communities in which the research was conducted were not preselected, but were determined based upon the level of support from local government. In practice, this factor did not affect the selection process, largely because of the federal, regional and zonal government support for the project. In each of the three communities where research was conducted, the local governmental staff were supportive of the research and no adjustments were required.

In reflecting upon these precautionary measures, which were based upon my work in Ethiopia since 2006, I feel they were largely successful. I obtained ethics approval from a federal agency (detailed below), after which regional, zonal and district authorities were

keen to offer their support. The hierarchical nature of the political system in Ethiopia is structured such that bottom-up approval is impossible, while top-down approval – if national authorities approve – facilitates much of the governmental support. I was provided with letters of support from each level of authority, which opened opportunities to conduct research activities without political concerns, because an agency higher than their own had already approved it. It also enabled large amounts of data to be shared, particularly at the zonal and district levels, both of which provided large amounts of data that would not otherwise had been available. Based on previous experience, had federal approval not been granted, conducting the research would have been closely monitored and, as a result seen as linked to politics, and therefore extremely challenging to complete.

For the participants involved, the topics of the interviews, focus group discussions and household surveys did not confront politics directly, and therefore proceeded comfortably, as planned. There was one exception to this, however, which was when discussions emerged about the government-run Productive Safety Net Program. The discussions about this program were political, largely because the implementation of the program had been politicized. As a result, some tension arose during this component of the research. The risk to participants remained low, and all of those who spoke about the program did so cognizant of how politicized the program had become. The tensions that emerged were not between political elite and community members, but between community members themselves, some of who argued (sometimes forcefully) that the Productive Safety Net Program should not be discussed. For the purposes of the methodology and risk mitigation, I decided that any data collection about the safety net would be done in individual interviews, not in focus groups, so as to avoid conflict about the sensitive nature of its implementation. As with all interviews, these interviews were conducted with informed consent and participants had the option to decline to answer any of the questions. Recognizing the power disparities within interview settings, this point was emphasized, and we took it as a positive sign that some participants indeed declined to answer some questions.

5.4 ETHICS APPROVAL

Many social science research projects conducted in Ethiopia do not obtain ethics approval from Ethiopian authorities. Instead they rely upon approval from their home university or host organization. The exceptions are those who collect biological samples or conduct medical tests on humans during their research, because the government is, and rightly so, much more strict about regulating research of this nature. During my time in Ethiopia during 2014 and 2015 most social scientists, nationals and foreigners, were astonished when I explained the ethics approval process from Ethiopian authorities, stating they had not heard of others obtaining approval from Ethiopian authorities. The main reason why ethics clearance is not obtained is that the regulations, application and approval process are not well known, and are difficult to navigate when they are known. In addition, throughout much of the country, social science research projects tend not to raise the alarm of ethics concern so long as the research is not political in nature.

Conducting research in a country such as Ethiopia, where administrative processes tend to be unclear, convoluted and inefficient, is both a deterrent to engaging with them as well as cause for significant researcher frustration. Before the University of British Columbia had given my research proposal ethics approval, I began inquiring about national ethics approval procedures. As this brief summary of that process demonstrates, my obtaining of ethics approval from Ethiopian authorities was greatly facilitated by formal and informal connections within Ethiopia, without which the time required to obtain clearance may have increased manifold. On numerous occasions while I was at the Ethiopian Public Health Institute (EPHI) I came across researchers who had literally waited years for approval.

In July of 2014 I contacted a colleague, who works in the Office of the State Minister of the Federal Ministry of Health, about the process of obtaining ethics approval in Ethiopia - I would utilize this connection eight times during the application process. I was informed that there were different approaches to obtaining ethics approval: (1) at the Federal level from the Ethiopian Public Health Institute, (2) at the regional level, from the

respective Regional Health Bureau, and (3) via an Ethiopian university. Based on my experience of the hierarchical system of governance in Ethiopia, I decided to pursue the first option. Many months later, when I met with authorities at the Regional Health Bureau in the Southern Nations, Nationalities and Peoples' Region (SNNPR), I was informed that they do not have the authority to grant approval for doctoral research projects. I also later learned that the university option would require a far stronger university-to-university partnership than I would have been able to muster as a graduate student. At the time that I selected the federal EPHI option, these details were unknown to me, and in fact unknown to almost everyone I engaged with. One staff member at EPHI recommended that I go directly to the Regional Health Bureau, rather than applying to EPHI, making it quite clear that these rules and regulations are unknown even to individuals within the issuing authority.

Upon obtaining the research proposal form, I utilized a second contact from the Federal Ministry of Health to meet with EPHI on my behalf, discuss a range of clarifications and submit the proposal. This second personal contact would make at least ten visits to EPHI for these purposes, largely liaising with EPHI on my behalf while I was in Canada. Accessing the required information from EPHI was more challenging than one might anticipate, resulting in my seeking advice from a consultant who had completed the process. Having started inquiring about this process while in Ethiopia in July, 2014, I first submitted a proposal to EPHI in November, 2014. In December, 2014, the proposal was forwarded for internal review at EPHI, at which time I added two letters of support from professors at Wolaita Sodo University.

In January 2015, the Scientific and Ethical Review Committee of EPHI scheduled a meeting to discuss my proposal, which was delayed. In February, 2015, I met with several EPHI staff to ensure the application kept moving forward. The first step was giving a presentation to the ethics committee, which was also open to any EPHI staff to attend. An internal letter approving my proposal for presentation was lost and never located. Fortunately, a copy existed, which was sufficient to keep the process moving forward. At one meeting, my proposal was looked at, apparently for the first time by one committee member, who said that before they could schedule the presentation I needed to expand

the proposal and include a number of additional sections. I expanded accordingly and re-submitted five paper-based copies to EPHI in February, 2015.

The presentation itself was scheduled, and delayed, on four occasions, but was finally given on March 4th, 2015. The question and answer sessions lasted almost an hour, and those present asked important and informed questions. The next stage of the approval process was to obtain official feedback and complete the required revisions. A back-and-forth of revisions took place throughout March and five paper-based copies were again submitted for final approval on April 2nd, 2015, with official approval given two weeks later. With federal government approval, gaining support from the Regional Health Bureau in SNNPR and from the Zonal and District authorities was straight-forward and only took one day each to complete.

Completing this process was important because I experienced how the Government of Ethiopia is trying to institute a system of quality control regarding the research that is conducted within the country. The main motivation to describe this process here is to inform other researchers of the challenges of obtaining ethics approval in developing country contexts as well as to emphasize the importance of doing so. Researchers, like myself, who advocate the use of participatory methodologies ought to not selectively decide who participates and who is excluded. In this research, smallholder farmers in Wolaita Zone were the key participants. However, others ought not be excluded, including authorities from the sub-district, district, zonal, regional and federal government. In my opinion, obtaining ethics approval from national authorities should be a standard requirement for all research projects (Cochrane et al, under review).

5.5. TIMING

I believe that contextualizing the timing of the research is crucial for understanding the results that emerged. The ethics approval process within Ethiopia began in mid-2014, while the actual data collection period was from February until November 2015. This time period is noteworthy because a national election took place on May 24th, 2015. In many nations this may not be of particular interest; in Ethiopia the influence of elections is significant. The election campaign period had begun when I went to Wolaita Zone in March, 2015. Throughout the entire Zone, regardless of urban or rural location, every household, business, and almost all places for potential advertisement had election notices on them. All were promoting the ruling political party. These notices were photocopied sheets of paper that were glued to walls, doors, windows and polls. Due to election-related activities, it was prohibited to have any community gatherings, including the focus groups for this research, during the week before and after the election. This did not pose any challenges to the research, as the time period was known well in advance and planned for. The pre-election atmosphere did shape the way in which government officials engaged with me, which turned much more positive after the election. Recognizing these dynamics would affect the research, I conducted the majority of the processes after the election, utilizing the pre-election period for ethics approval and formative interviews.

In the next chapter I begin to describe my research findings, specifically answering the first research question posed in this study: What makes smallholder farmers vulnerable to food insecurity? To make the chapter more readable, the findings are presented in a series of thematic sections. I was reluctant to organize the data in this form, as it advances the idea that farmers lives' can be compartmentalized. The lived experiences of smallholder farmers are such that all these themes interact, intersect and engage with one another; one component cannot be understood without the broader context of all the others. Throughout Chapters 6 and 7 I have attempted to make cross-thematic linkages and reinforce the interconnected nature of smallholders' lives as a means to convey their lived realities within a dissertation format.

CHAPTER 6. VULNERABILITY TO FOOD INSECURITY

This research was driven by three primary research questions: (1) what makes households vulnerable to food insecurity, (2) why does the literature indicate that levels of service and program adoption are low, and (3) can a participatory, co-produced research approach facilitate positive change in programs and services? This chapter focuses on the first of these, drawing upon the data obtained during the research processes, which are outlined in Chapter 5. As the data presented in this chapter are foundational to the chapters that follow, some aspects and analyses of the data are continued in later chapters.

6.1 OVERVIEW

Throughout all three communities (locations in Figure 6.1) food insecurity was chronic, with average food shortages lasting for several months each year. Significant overall percentages of households reported not being able to afford to send their children to the tuition-free public school, due to associated costs of travel, books, uniforms and lost labor. Household assets differed, but the majority had a metal roof and lacked a radio or a mobile phone. Regardless of location, at least a quarter of households did not have a member living in them with a fourth grade education or higher. In a significant number of households (a third to a half) someone had migrated, for skilled or unskilled work. Only a minority received domestic remittances, and very few received international remittances.



Figure 6.1 Location of Communities within Damot Gale (three study areas identified; distance between Sodo and Boditi 21 kms)

Source: Google Maps (white marker above Buge indicates location of the irrigation reservoir)

The three communities included in this research, despite being located in the same district, were quite distinct from one another. Before exploring what insight the comparative findings can offer, it is noteworthy to explore where similarities exist and in the process further contextualize the three communities involved. For example, total population per community was different (Adeaaro 5,333; Adea Ofa 4,000; Buge 10,619), but the structure of households was remarkably similar. According to the household surveys, sixty percent of household members contributed to the household as primary

workers, or had the potential to do so, whereas forty percent were dependent, most being children or elderly members (see Table 6.1).

Table 6.1 Demographic and Economic Dependency Ratios

Community	# Dependant	Average household size	# Working
Adeaaro	2.1 (40%)	5.3	3.2 (60%)
Adea Ofa	2.5 (42%)	6	3.5 (58%)
Buge	3 (40%)	7.5	4.5 (60%)

The average household size in the communities differed. However, this does not appear to reflect differences in household dynamics or fertility rate, but rather reflects opportunities, and therefore how many members live in the household. One pull factor is that children living in Adeaaro have a greater opportunity to engage in off-farm labor work as they are located near to Botidi town. Extreme poverty and chronic food insecurity are push factors. Another pull factor in Buge is that agricultural livelihoods, as explored in more detail below, are more viable, resulting in greater retention of youth, whereas extreme poverty and chronic food insecurity push youth in Adeaaro and Adea Ofa away from rural areas (Cochrane and Vercillo, 2017). While the differences are significant, and the most food secure community has the highest average household size, average household size does not align with food security status for the other two communities. In contrast, Gecho (2014) finds that larger household sizes were correlated with better relative positioning in terms of wealth ranking, and lower averages of household numbers with worse-off households. While no correlations of household size were found with food security status in this study, this point is interlinked with the concerns raised by community members regarding education and youth migration addressed later in this chapter.

The greatest difference between the government and survey data for average household size was in Buge (5.4 versus 7.5; Tables 6.1 and 6.2). However, in analyzing the results of

the survey conducted with community members, they felt the survey figure was too low. While this does not necessarily mean it is incorrect, because it is an average, the feedback suggests the lower governmental figure is less accurate. Community analyses of the survey findings in Adea Ofa also felt household size should be higher, suggesting seven or eight, instead of six, as did those in Adeaaro, where a figure of seven or eight was also suggested. The role of migration helps to explain the differences between technical family size (those living in the household at the time of the survey), and actual household membership (including those who have migrated). This is one potential reason why household sizes appear smaller in Adeaaro, as it is located near to a town wherein it is easier to relocate for temporary or seasonal periods. However, some in Adeaaro responded that household size is actually declining, citing the start of family planning support in 2006, including education on pharmaceutical options.

Table 6.2 Community Demographics, Government Data

Community	Population	# Households²¹	Average household size
Adeaaro	5,333	1,011	5.3
Adea Ofa	4,000	771	5.2
Buge	10,619	1,957	5.4

Source: Data provided by the Zonal Administrative Office on May 14th, 2015.

Household size is one example, of many, in which the household survey data collected in this research differs from government data (see Tables 6.1 and 6.2). In both Adeaaro and Adea Ofa, according to in-community development agents, household surveys have not been conducted in recent years, suggesting the governmental data is based upon estimations and sampling, as is done with agricultural data. Another indication of the

²¹ Note: The number of households listed in Table 6.2 differ from the number of households for the surveyed communities outlined in Chapter 5. This is because Table 6.2 (and associated discussion) is the *kebele* population whereas the surveyed area was one administrative level lower, a sub-*kebele* area, representing one third of the *kebele*.

incorrectness of governmental data is that the zonal government data differs from that provided by the community-level government staff. For example, in Buge the extension worker said there were 1,368 households, not 1,957 as listed in the zonal database. The participatory validation approach used in this research helped address the problematic data and divergent figures, and thus presenting a more accurate picture of the household structure in these communities.

Although the co-produced survey was not primarily about health, community members felt that malaria was a serious concern that affected their food security status by reducing household labor, causing child mortality, and consuming household income. Across all three communities, despite differences in water availability, such as the presence of year-round irrigation, the average annual number of reported malaria cases per household was consistent at 1.8. Malaria was a key concern for residents of Adea Ofa, who highlighted the year-long burden that it presented, combined with a consistent lack of medicine at the community health post. Where available, the cost of medicine is thirty ETB (approximately USD 1.40) for adults and fifteen ETB for children (approximately USD 0.70), resulting in many having to decide between food for the day or medical treatment. For the most vulnerable, a full day of collecting firewood or grass and carrying it to Boditi town for sale earns ten to fifteen ETB, thus malaria treatment can require up to three days of labor intensive work. Beyond direct health impacts, research by Burlando (2015) indicates that education levels and food security are negatively affected for those living in areas where malaria is endemic.

The government is working to reduce malaria incidence through spraying, including DDT.²² This, however, has significant negative impacts on human health, particularly for infants who are being fed foods with high levels of DDT residue. A study by Mekonen et al (2015) found DDT residue in every single maize sample in southwest Ethiopia, indicating the extent of its use in the region. While this research finds significant positive impacts of irrigation, it must also be recognized that malaria transmission significantly increases (up to a six-fold incidence increase) around irrigation schemes, requiring agricultural interventions to be integrated with broader concerns and anticipate as much

²² Dichlorodiphenyltrichloroethane

as possible the impact of unintended consequences (Kibret et al, 2014). Similar unintended consequences, including an increase in the incidence of malaria, have been found with the creation of hydroelectric and irrigation dams elsewhere in Ethiopia (Hathaway, 2008; Yewhalaw et al, 2014).

The stages that were developed to assess food security, despite the differences between the communities, point to the trends that unite them, such as the factors and metrics for the household survey proposed in the focus group sessions. Across the three communities, the categorization was remarkably consistent. Some of the consistency was due to the nature of the factors. For example, livestock holdings do not vary widely, resulting in groupings of 0, 1 or 2 and more. For other factors, there was less consistency, such as for the number of coffee and enset plants, but averages were taken to allow for comparative analysis. While relative staging adds contextual value, the factors for which these differences existed were limited, which would have resulted in only minor differences to the measures of the stages. I have employed a consistent scale for all factors across the communities (see Table 6.3), based on decisions made in the focus group discussions with community members, while recognizing that further contextualization within each community is possible for three of the ten factors explored.

Food security is connected to, and often an expression of, wealth and poverty. Before delving into the Stages of Food Security methodology, and the findings of this research, some explanation is necessary of what a food security focus can offer, in contrast to studies of poverty. In many parts of Ethiopia, a primary manifestation of poverty can be food insecurity, since many rural households primarily meet all their household needs in a subsistence manner, having limited engagement with the cash economy. While a number of measures of poverty align with those used in this study, the emphasis of food security draws out metrics that would have otherwise not been included (as described in Chapter 5). More importantly, however, a focus on food security enables an assessment of the programs and services that seek to strengthen food security. Furthermore, there are some indications, including findings in this research, that traditional poverty measures do not necessarily equate with those of food security. For example, Bhattacharya et al (2004: 839) find that the relationships between nutrition, poverty and food security are not

always linked, and that “researchers should be cautious about assuming connections.” In a study of Vietnam, Mahadevan and Hoang (2015) find the linkage between poverty and food security is strong in urban assessments, but less so in rural ones. Wight et al (2014) highlight the importance of definitions and metrics in determining how connected poverty and food insecurity are, while at the same time finding strong correlations between the two. A recent study (Grobler, 2016) finds that perceptions of the causes of poverty are influenced by food security status, suggesting that independent, comparative studies of food security and poverty may further enhance our understanding of both experiences, how they relate to one another, and how the experiences of poverty and food security influence perceptions of causation.

As with Mahadevan and Hoang (2015), this research indicates that measures of poverty and food insecurity are not as linked as might be assumed. For example, there is a weak inverse correlation between months of food insecurity and land size ($r=-0.14$), with similarly non-conclusive correlations between months of food insecurity and livestock holdings (dairy cow $r=-0.19$), fruit trees (number of avocado trees $r=-0.05$, coffee trees $r=-0.09$) and household size ($r=-0.1$). For the vast majority of households, broad generalizations cannot be drawn. Rather, it is the diversity of ways in which households encounter food insecurity that requires greater attention; averages and regression analyses tell only one, of many potential, narratives of food security. As every farmer will emphasize, there is no average household, average yield, average rainfall or average food security situation. Averages are imposed; they provide illumination but are not lived realities.

As a researcher, some of the experiences forced me to confront severe inequalities and injustice. I echo a reflection offered by Uvin (2009: 2) in his study in Burundi: “the lives of most of the people we interviewed... are an affront to human dignity and totally deny any notion that there is an international community that stands for any values of equity or justice... They die from easily preventable or curable diseases – tetanus, malaria – at scandalous rates... The poverty of Burundi, and the stinginess of the international community when dealing with it, is revolting in our world of over-consumption.” In my own field work, in a single focus group discussion, three of eleven men were suffering

from severe cases of elephantiasis, a parasitic infection that causes swelling. While preventative measures are well known, currently available treatment only stalls the spread of the disease and does not cure it.

In interviews I engaged with individuals struggling with extreme hardship. A few examples: an elderly woman caring for a blind grandchild was removed from the Safety Net for not selling her land to the community chairman, reducing her to begging and living in a state of constant concern for what would happen to her grandchild upon her passing; an elderly couple, both of whom were practically blind and without relatives, described their severe and consistent lack of food, bringing my fellow data collector and me to tears, requiring us to stop the interview; a gentleman who had lost all fingers and toes and was disfigured due to a battle with leprosy sat around his children and described how he was unable to move, save sliding around within a small radius of his house. While many may have heard such stories, I lack the ability to convey what these experiences feel like, sitting face to face with individuals experiencing such difficulties in remote areas where the expectations for any positive change to their lives is extremely unlikely. The “experience of suffering, it’s often noted, is not effectively conveyed by statistics or graphs” (Farmer, 2005: 31). There is a term in Arabic, *huzn*, that combines sadness, distress and pain arising from the experience of an external event, which is the most appropriate description I can think of for the imprint such experiences leave upon oneself.

Stages of Food Security

The focus group sessions highlighted key factors to assess food security and the ways in which community members assessed the relative level of associated food security for each factor (see Table 6.3). The factors did not equally apply to all communities. In Adea Ofa, for example, there were very few coffee and mango trees, which was due partly to a lack of access and partly to a slightly different environmental setting, which residents felt was less conducive to growing these trees. Both are cash crops and the lack of market access is one additional reason why these crops may not be regularly grown in Adea Ofa, the most remote community. Similarly, in Adeaaro many of the livestock measures were irrelevant

due to minute land sizes that are unsuitable for livestock and few communal lands where residents could graze such animals.

Assessing food shortages by month requires some context: this is a self assessment of the months of the year wherein households did not have sufficient food to meet the needs of the household, it does not assess the severity of those shortages or the extent. As a result, the metric lacks specificity, but it is one with which smallholder farmers are familiar. Most household members explain that food shortages began in a certain month and ended in another, and count the time period by the involved months. It was this metric that community members advocated, as opposed to other potential approaches. The exact days of insufficient food were not tracked and thus an inappropriate metric. Food shortages occurred in specific ‘hunger seasons’ of the year and therefore spot checks of meals and foods consumed in the most recent week also posed limitations (unless regular surveys were conducted to incorporate the seasonality of food shortages). In each of the community level assessments there is an aggregate of all factors listed as an “average” index for food security status. Recognizing the unique contexts of each community, this average is not relied upon frequently. Rather, I employed specific metrics (e.g. when comparing across communities I utilize specific measures, such as land holdings and months of food shortages, not the aggregate average). Despite the nuance that is made invisible by aggregating the factors, the average figure indicates the general status, and is reflective of the general trend. The scales of each community (Figures 6.2, 6.3 and 6.4) indicate the distribution of factors across the communities.

Table 6.3 Spectrum of Food Security Factors, in Stages

Factor	Secure	Middle	Insecure
Food Shortages	0 – 1 months	2 – 4 months	5 or more months
Adult Laborers	6 or more	3 - 5	0 – 2
Sheep	2 or more	1	0
Oxen	2 or more	1	0
Dairy Cows	2 or more	1	0
Coffee Trees	60 or more	20 – 60	0 - 19
Enset Plants	100 or more	50 - 99	0 - 49
Mango Trees	2 or more	1	0
Avocado Trees	2 or more	1	0
Land Size	2 or more <i>temut</i>	1-2 <i>temut</i>	Less than 1 <i>temut</i>

Labor opportunities (and the lack thereof) were not included in the stages of food security because community members made clear that general measures of household members working outside of their community did not reflect the diversity of the types of work involved – as discussed in more detail below, some labor opportunities are expressions of vulnerability while others are expressions of opportunity. Furthermore, some opportunities consisted of precarious daily labor and others were more permanent or seasonal positions. Rather than have a generalizable measure of labor opportunities in the stages of food security model, it was decided together with community members that the household survey should include questions that related to the number of migrants in a household and the type of work they migrated for, enabling the nuances of the diversity of labor to be explored.

What is notable about Adeaaro (Figure 6.2) are two strengths, namely a high number of working age individuals in each household and many households investing in avocado trees. In the harvesting seasons it is common to see individuals carrying sacks of avocado to the market in Boditi town. In addition to the suitability of the environment, community members explain that avocado saplings were recently made available (within the last

decade for the early adopters). They take six to seven years to mature, but were much less common previous to that. After seeing the market demand as well as the relatively high prices, many households have started growing avocado trees that are only now beginning to produce yields. Farmers explain that “every household is now planting avocado trees.” While there is a potential for market saturation and declining prices, the regional and national demand continues to rise, particularly with the expansion of cities in the southern region (e.g. Hawassa and Shashamane).

In contrast, Adeaaro fares relatively poorer than the other communities in a range of agricultural (e.g. coffee plants, mango trees and enset) and livestock-related (e.g. oxen and dairy cows) activities. The primary reason given for this difference is the significantly smaller land sizes in Adeaaro (average 0.8 *temut*; 0.2 hectare). Average holdings are less than half the size in Adea Ofa (1.5 *temut*; 0.4 hectare) and almost a third the size of those in Buge (2.2 *temut*; 0.6 hectare). Despite these challenges, food shortages are somewhat greater in Adea Ofa than Adeaaro, which relates to the greater access to daily labor opportunities in nearby Boditi town, improving access to available labor in Adeaaro households. Those living in Adeaaro migrate much less than the other two communities, but what is missed are daily laborers, who are not migrants but commute by foot on a daily basis. Adeaaro, due to its proximity to Boditi town and the market within it, has taken advantage of non-farm activities, such as creating and selling handicrafts, which includes items such as chairs and bedframes (25% are engaged in these activities). Similarly, almost a fifth (18%) sell butter, which is wrapped in enset or banana leaves and sold to vehicles driving on the asphalt road running between the cities of Sodo and Hawassa, which passes through Boditi town.

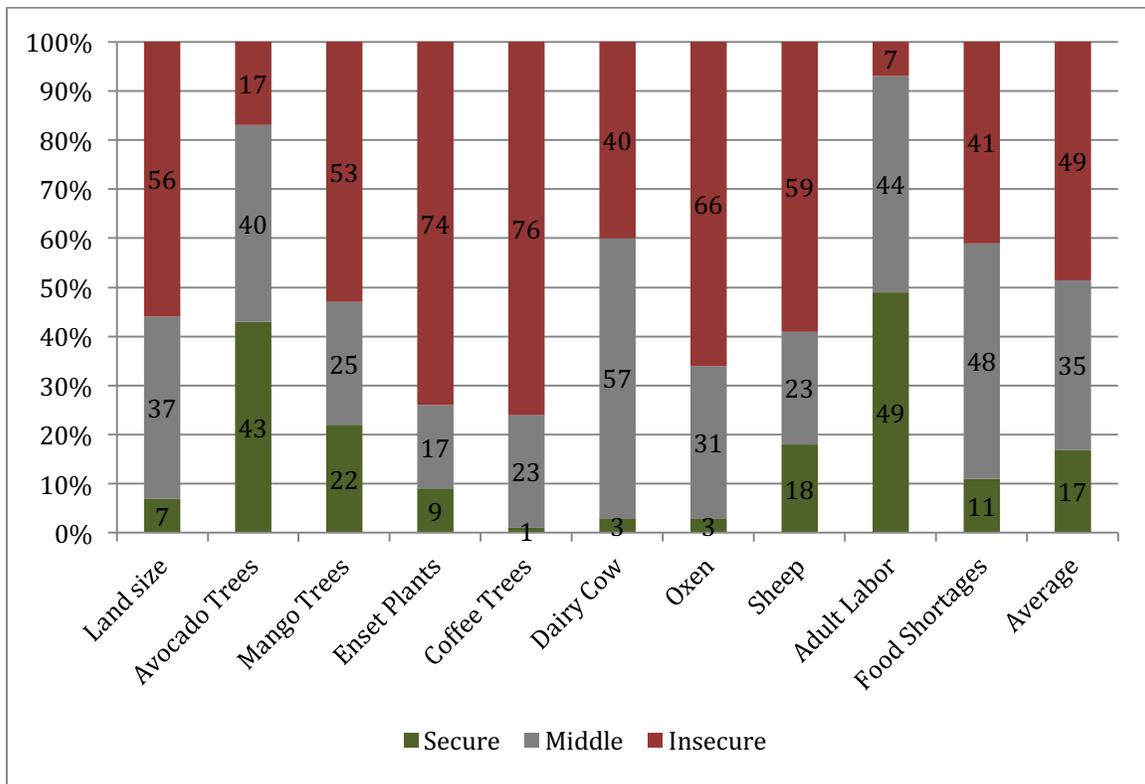


Figure 6.2 The Distribution of Stages of Food Security, by Factor, in Adeaaro

The relatively wealthy are very few in Adeaaro, but are identified by factors selected by community members, such as owning a donkey, which is used for transportation (5% own one or more), and access to hybrid chickens, which are used for egg production and sale (4% own one or more). The relatively poorer households live in extreme poverty and chronic food insecurity, with forty one percent experiencing food shortages for five or more months each year. A similar percentage (40%) were in debt at the time of the survey (borrowing and debt are explored in greater detail below).

The most remote of the three communities, Adea Ofa, requires a full day to walk to and from Boditi town, making these trips infrequent (Figure 6.3). For context, however, this community is not remote by Ethiopian standards; many parts of the country are located in areas where access to the nearest town is greater than 10 hours one-way (CSA, EDRI

and IFPRI, 2006). Nonetheless, the distance is such that access to the services available in the nearest town, such as secondary schooling and improved healthcare services, are largely unavailable to residents of Adea Ofa. The inaccessibility of a market is reflected in low levels of cash crop utilization (e.g. coffee plants and mango trees), despite relatively greater land availability when compared to Adeaaro. While avocado trees are fewer, this reflects accessibility to saplings as well as the market.

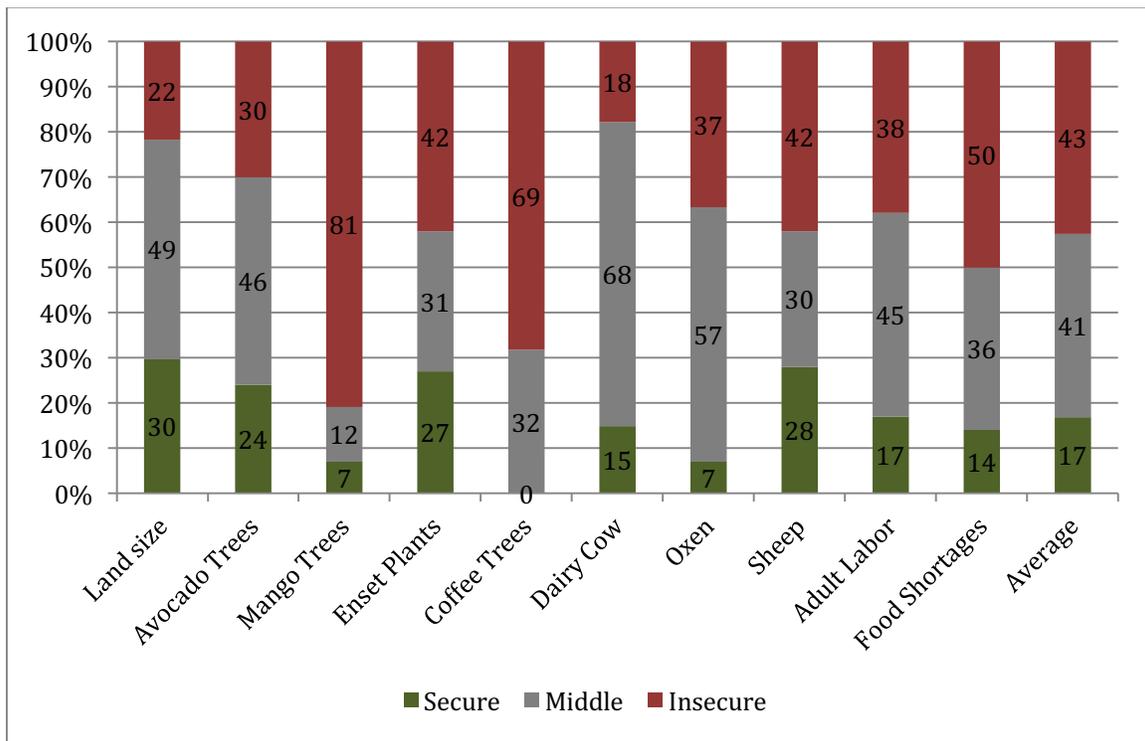


Figure 6.3 The Distribution of Stages of Food Security, by Factor, in Adeaaro Adea Ofa

Food insecurity is most severe in the remote Adea Ofa community (Figure 6.3). Fifty percent experience food shortages for five or more months of the year. Ownership of relatively affordable technologies, such as radios (12%) and mobile phones (35%), is uncommon. Largely due to its food insecurity and isolation, forty six percent of

households cultivate solely for household consumption, having the lowest level of households selling to the market in the three communities. Rather than handicrafts and butter, which are relatively strong sources of income, non-farm income sources in Adea Ofa are activities like collecting grass and firewood, which are done when no other options exist. Following cutting or collection, one must walk to the market to sell what can be carried for very low prices – a full day’s labor of this difficult task may result in fifteen ETB (approximately USD 0.70). Twenty percent report collecting firewood and nineteen percent collect grass. Other non-farm activities are common, such as selling butter (25%) and selling milk (17%). However, these tasks are done by those who have dairy cattle, not the poorest members of Adea Ofa, who are the ones collecting firewood and grass. An astonishing sixty eight percent were in debt at the time of the survey. It is not just access to services that impacts remote areas; the government support is also far less. For example, only thirty five percent of households in Adea Ofa had been trained by a development agent, the lowest rate of the communities despite all three having extension workers.

On the relatively wealthy end of the spectrum, only nine percent have a donkey and only three percent have hybrid chicken. Many more households in Adea Ofa, compared to Adeaaro, have donkeys. This can be best understood by its remote location, and the greater need for transportation in acquiring basic goods and services. A similar, very small, number of households in both Adeaaro and Adea Ofa had acquired hybrid chicken. These two factors, while important indicators of wealth, are not listed in Figures 6.2, 6.3 and 6.4 because there was no ‘middle’ or ‘insecure’ differences, households in both categories had neither. Instead these are factors explored in the narrative, as expressions of relative wealth.

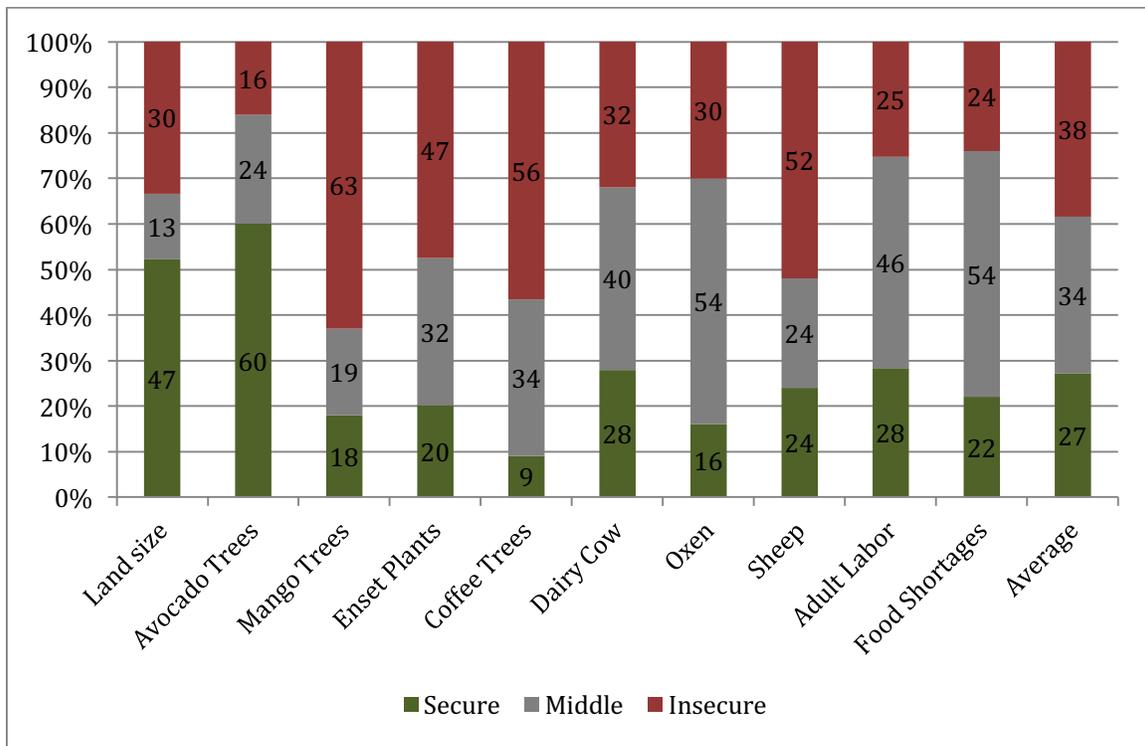


Figure 6.4 The Distribution of Stages of Food Security, by Factor, in Adeaaro Buge

The distribution of the stages of food security in the community with irrigation, Buge, is significantly different from both Adeaaro and Adea Ofa (Figure 6.4). Almost half (47%) have sufficient land size for food security, as determined by community members, the majority (60%) have multiple avocado trees, and a large majority (76%) have a vegetable garden, which was enabled by the access to irrigation. Eleven percent had one or more donkeys, and twenty percent had hybrid chickens, highlighting that significantly more households were able to invest in new businesses, and had access to markets required to take advantage of those opportunities (Figure 6.4).

Despite its relatively strong status compared to the other communities, many residents of Buge experience entrenched food insecurity. For example, twenty four percent encounter five or more months of food shortages annually, and thirty nine percent cite are unable to afford to send all their children to school. These are the lowest of the three communities

but highlight the prevalence of poverty and food insecurity throughout Damot Gale district, and Wolaita Zone generally. Thirteen percent gathered either firewood or grass, a non-farm activity typically done out of necessity, rather than as an economic opportunity.

Within the focus group discussions, community members recognized pathways that support the strengthening and weakening of food security. Declines in food security may be caused by environmental changes, including drought, disease, frost, fire, and irregular rainfall, as well as human activities that result in erosion and soil fertility loss. Greater numbers of dependent household members negatively affected food security, while more working members increased yields and opportunities. In years of difficulty, when governmental support was available, it was highlighted as being a key mechanism to support households by stabilizing resources to avoid asset depletion. This emphasizes the importance of social protection programs, which are becoming more common in Africa (Nino-Zarazua et al, 2012), including Ethiopia's Productive Safety Net Program (PSNP). Smallholder farmers may take action to strengthen their own situation by improving land management to reduce erosion, such as by creating bunds, or by adopting new methods and utilizing new inputs. The climate was considered crucial by everyone consulted and could play either positive or negative roles in the pathway to increased food security. The role of the climate was voiced more powerfully in communities without irrigation.

The focus group discussions highlighted segments of society that are particularly vulnerable to food insecurity. These included female-headed households, largely due to limited labor and high demands, the elderly who do not have family members within the community, and the landless (e.g. those with 0.125 *temut* / 0.03 hectare or less, which accounted for only two percent of the households). For households in these situations, chronic food insecurity was the norm, and members often relied on begging for food from other community members to survive. A typical food gift to the poor is *enset*. A mother heading a female headed household describes the gift givers as having large land, dairy cattle, oxen and donkeys, which align with the factors identified in focus groups as being the relative food secure. She says the givers tend to be extended family or households in close proximity, who may send a few kilograms of food once per month. This amount

tends to provide for a family for a day or two. One of the givers of food gifts in Buge explained that gifts may be given less frequently, once or twice a year. Regarding the households that receive such food gifts, he stated: “no one brings food to poor people’s homes, the poor go and ask from them.” Throughout conversations with those who received or gave gifts, there was a strong connection to religion. The givers described themselves as “following the command of God” and who “believe in God” whereas recipients suggested the reason for giving was an expectation of reward from God or as a biblical command. One of the primary ways in which food security is explained within the communities is through religious perspectives such as these, which neglect the historical and political reasons why some households have more land and assets than others. One person in Adea Ofa hinted at other motivations for food gifts, alluding to the need to “live socially with others,” suggesting that these gifts are a means of continuing the status quo of inequality, quelling the seeds of dissent.

In 1998-00 Tsegaye and Struik (2002) conducted a Participatory Rural Appraisal in Areka, within Wolaita Zone, wherein community leaders and key informants contributed to the creation of a list of factors used for relative wealth ranking. In comparing the findings, it is notable how similar the distribution of relative statuses is, despite being in a different part of Wolaita, and being conducted almost two decades earlier (12% rich, 35% middle, 53% poor). However, the indicators used to differentiate the groups are significantly different, signifying either a much different situation in Areka or rapid change from the 1998-2000 period to the present. For example, the “middle” category had 0.5 ha or larger, one donkey, one or two cattle, two or three dairy cattle, which were situations that identified households of strong food security in this study. As outlined below, the majority of households without irrigation have experienced moderate or significant negative change over the last ten years, suggesting that the findings of Tsegaye and Struik (2002) are indicative of worsening food security and resource-level situations within Wolaita. At the same time, the approach of Tsegaye and Struik (2002) focused on input from community leaders, which may have affected the definitions of ranking categories.

While each community is unique in its expression of the factors identified, and the distribution of the stages, it is noteworthy that Adeaaro and Adea Ofa are quite similar when the factors are averaged: both have seventeen percent as the relative food secure, and significant minorities in the relative middle (35-41%), while the food insecure are the largest segment of society (43-49%). In both communities, despite Adeaaro being nearer to the town and the opportunities that it offers and Adea Ofa having a larger average land size, the greatest segment of the community are those who are food insecure. Although these figures are high, they align with other studies of Wolaita Zone, which find upwards of fifty percent of households being food insecure (Eneyew and Bekele, 2012; Gebeyehu, Regasa and Tebeje, 2015; Gecho, 2014), and similar to levels of food insecurity and poverty found throughout Ethiopia (Abdulla, 2015; Hill and Porter, 2015; Muche, Endalew and Koricho, 2014; Thome et al, 2016).

The only difference was in Buge, where access to irrigation over the long-term has significantly altered the food security status in the community. The relatively food secure are ten percent greater, the middle segment is moderately lower, while the most food insecure are far fewer (11% lower than in Adeaaro). This indicates that while access to markets, goods and services in towns is important, and offers unique opportunities, the greatest transformation can be attributed to irrigation access. This finding is not groundbreaking. However, it does raise questions of why a myriad of ‘pro-poor’ supports have been developed for rural smallholder farmers that have largely excluded irrigation infrastructure. For example, none of the ETB 605,228,340 (USD 27.5 million) activity, approved for a single year in Wolaita Zone alone, included irrigation infrastructure. The topic of irrigation is explored in detail below.

The following sections assess the causes of vulnerability to food insecurity, based upon the findings of the qualitative and quantitative data. This chapter generally reflects the content of the household survey that was co-created with community members. The following section (6.2) is sub-divided into thematic components: seasonality and rainfall, poverty, location, education, inequality, diversity, population growth and land size, and change over time. These themes reflect the factors identified by community members as

key for assessing food security, which are contextualized with the qualitative context from individual interviews and focus group discussions.

6.2 SMALLHOLDER FARMERS VULNERABLE TO FOOD INSECURITY

One of the primary goals of this research is developing a better, more contextualized understanding of what makes smallholder farmers vulnerable to food insecurity, and conversely assessing what lessons can be learned from those within these communities who are food secure. In the design of the research it was assumed that these findings would enable a more nuanced discussion about why services offered to smallholder farmers are not adopted more widely or at all, and offer insight into how these policies and programs can be made more effective, appropriate and suitable. The following subsections explore the thematic areas. However, at the outset it deserves re-emphasis that these themes are best understood as interacting and intersecting in dynamic ways. The thematic presentation in this chapter is for the ease of readability and presentation of the findings, and ought not result in compartmentalized interventions that fail to reflect the situatedness of the broader set of factors identified by community members.

Seasonality & Rainfall

A primary cause of food insecurity is too much, too little, insufficient or unpredictable rainfall. While seasonality has gained some traction in the literature (e.g. Dercon and Krishnan, 2000; Deverux, Sabates-Wheeler and Longhurst, 2012), the role that this factor plays is often under appreciated due to the ways in which rainfall data is commonly presented, which tends to be in the form of seasonal or annual averages. For example, Figure 6.4 clearly outlines the two rainy seasons experienced in Wolaita, based on averaged rainfall per month over a ten year period. Farmers, however, do not experience

averaged rainfall. They encounter significant variability from season to season and from year to year, which only appears consistent when presented as averages. Watts (1983: 14) calls ‘normal’ rainfall a “statistical fiction.” When findings are based upon short term assessments, the number of vulnerable households can vary dramatically (Dercon and Krishnan, 2000) as the statistic does not sufficiently take into account the intra- and inter-year variability.

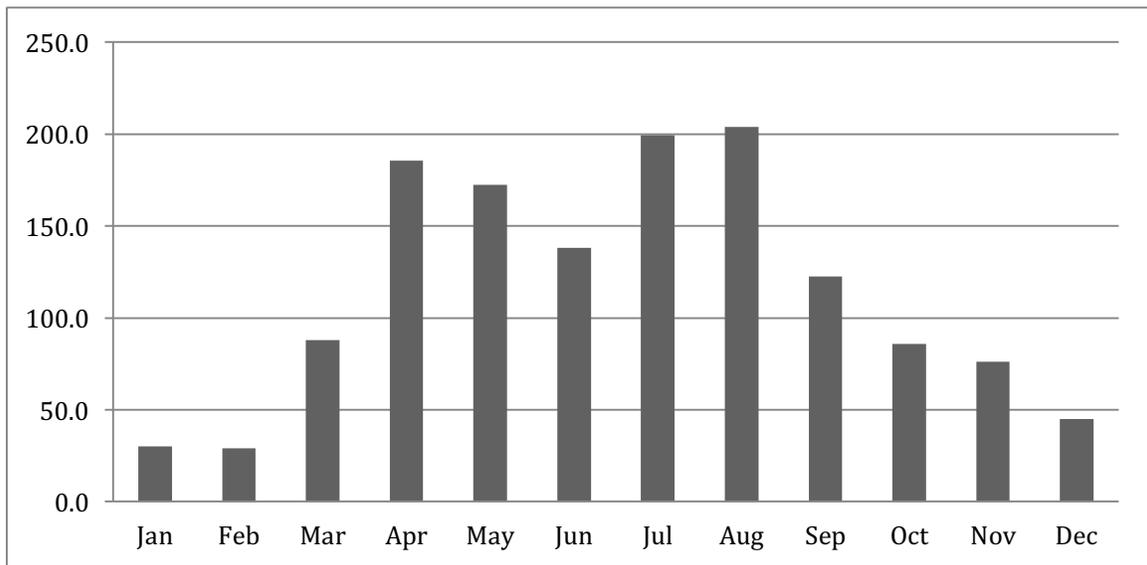


Figure 6.5 Average Rainfall in Wolaita Sodo (2003-2013)

Source: Ethiopian National Meteorological Agency.

To demonstrate the lived realities of farmers, and the impact of rainfall variability, consider the same ten year period shown in Figure 6.5 (2003-2013), but in Figure 6.6 with the range of example years by month. Note that in some years, the heavy rainfall is in the March – June period, while in others it is the June – September period. In some years one or both of the rains fail entirely, while in others they are excessive, late or early. For farmers, the rainfall changes are disastrous. Sweet potato, an important root crop that is relied upon to overcome food shortages, is sensitive to moisture changes, and the crop can

be lost entirely in situations of rainfall variability. In the year of this research, 2015, the rains failed, something that was unexpected for farmers, who planted maize as they normally would, only to see their crops wither halfway through the typical growing season. Wolaita Zone was one of the many parts of Ethiopia that experienced an emergency food insecurity situation in 2015 and 2016, which was the worst experienced in decades. Over ten million people required emergency food aid and almost half a million children required treatment for severe acute malnutrition (ReliefWeb, 2016).

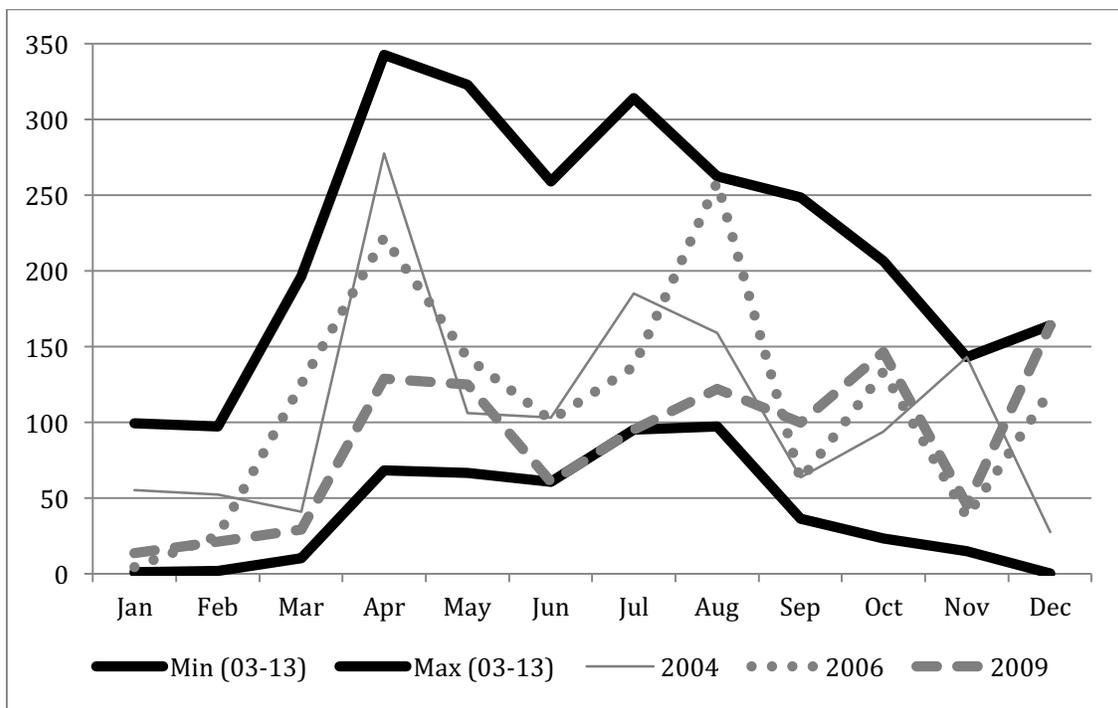


Figure 6.6 Rainfall Variability in Wolaita Sodo (2003-2013), selected years (in mms)

Source: Ethiopian National Meteorological Agency

One of the reasons Wolaita was selected as a study site for this research was that rain variability is a significant challenge. In the highlands of Amhara and Oromia Regional States, rainfall is more consistent, and these areas could be considered relatively rain

secure. In Afar and Somalia Regional States rain is consistently negligible. Parts of SNNPR, including Wolaita, lie on the boundary, with some years of ‘average’ rainfall, but much more often the rainfall is consistently inconsistent, posing unique challenges of uncertainty. Farmers in all three communities where this research took place expressed concern that rainfall variability has increased in recent decades. Data from the National Meteorological Agency appears to indicate that variability has been the norm for as long as data is available (1970-present) in Wolaita (see Figure 6.7), although further research is required to better understand the trends of climatic variability.

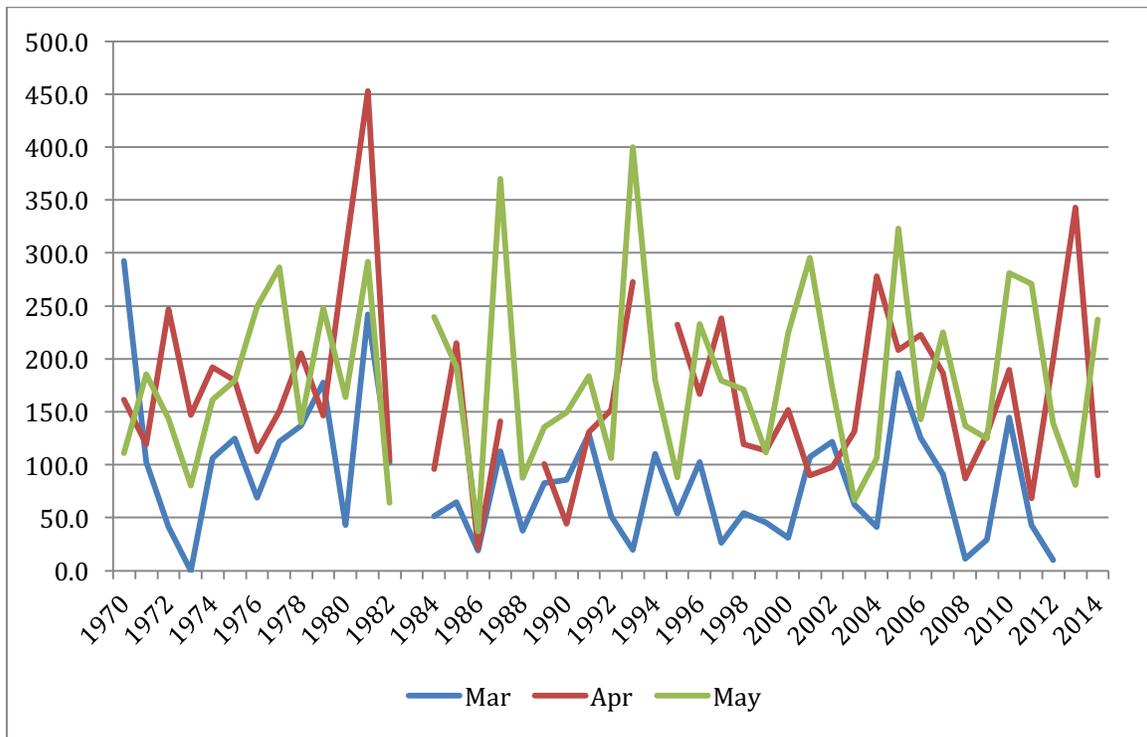


Figure 6.7 Selected Monthly Rainfall 1970-2014 (in mms)

Source: National Meteorological Agency

Rainfall is a key factor for food security as its fluctuations can result in lost crops, and can takes years to recover from. Farmers plant hoping sufficient seasonal rainfall will arrive,

unaware of how much rain may fall in the months that follow planting, and where or when. This does not mean that farmers are not cognizant of variability or changes to rainfall. In fact, they are actively changing the crops planted in response to the changes. The point is, rather, that farmers do not plan for flooding or drought, but for sufficient rainfall to grow their crops.

While unpredictable rainfall tends not to affect individual households differently within communities, it is a primary reason why communities, and areas such as Wolaita Zone, are vulnerable to food insecurity. Although farmers draw upon traditional knowledge and experience when determining the time to prepare fields and plant, rainfall variability has made their methods less effective. There are two opportunities that could emerge from this finding: (1) improving access to meteorological information, drawing upon existing information dissemination for rural smallholder farmers, such as the Ethiopian Commodity Exchange (detailed in the following chapter), and (2) conducting research that integrates traditional knowledge with meteorological data to arrive at innovative and more accurate prediction approaches, as has been done in other East African countries (Chang'a, Yanda and Ngana, 2010; Guthiga and Newsham, 2011; Kalanda-Joshua et al, 2011).

Community-level data on malnutrition cases were not available, but data from the Zonal Health Authority identify how seasonality impacts the experience of food insecurity. Cases of diagnosed child malnutrition spiked during the 'hunger season' (March to June), every year – the only difference was the extent (see Figure 6.8; Cochrane and Gecho, 2016). The hunger season, a community member in Adea Ofa explains, “relies on the rain.” A key indicator for community members is when households begin buying food, showing that their own harvest stores have run out. In bad years, this can begin as early as January while in better years it may not begin until April. In years of irregular, excessive or insufficient rainfall, the high cost of fertilizer does little to increase yields, and thus the costs are even greater, as scarce resources are invested for little return. During difficult times, crops are “eaten green”, meaning before they are ready to be harvested, which negatively affects how much is stored and therefore a single season of poor yields can negatively impact several seasons.

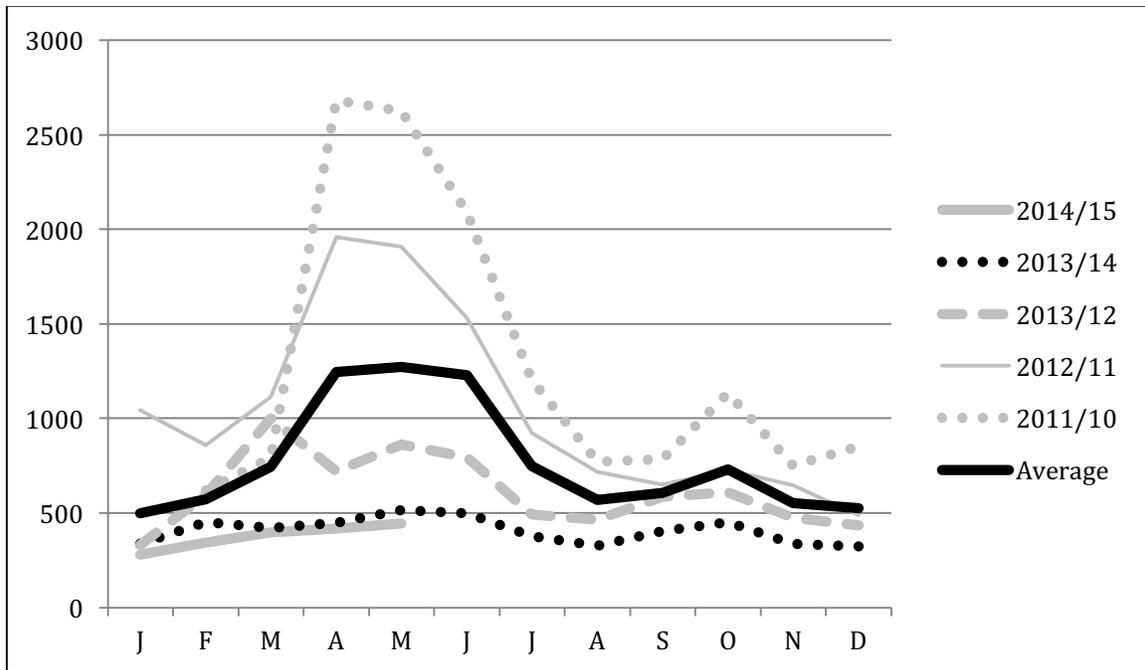


Figure 6.8 Seasonal Malnutrition in Wolaita Zone (New Intake of Out-Patient Child Malnutrition Cases)

Source: Wolaita Zone Health Office

Research conducted by Abay and Hirvonen (2016) found that proximity to markets was correlated with healthier and better nourished children compared to children living in more remote areas. However, seasonal spikes of malnutrition within those towns continued. The data I obtained from the Zonal Wolaita Health was aggregated by district, and thus I was unable to compare the three communities studied. However, in order to assess the impact of proximity to market towns, I compared three districts surrounding a Zonal city (but excluding the city itself), Sodo Zuria District, and Damot Woyde (also spelled Weydie in government documents) and Diguna Fango (see Figure 2.8, in Chapter 2). The districts abut one another, progressively moving away from the Zonal city center, and thus the latter are further from markets (populations of the districts

are: Sodo Zuria 192,009; Damot Woyde 101,851; Diguna Fango 110,216). In 2012 the rains failed, and therefore may provide insight into this question. I analyzed data on the number of children diagnosed as malnourished from January 2012 until May 2013. During this period Sodo Zuria had only four diagnosed cases of child malnutrition, Damot Woyde had nine cases and Daguna Fango had twenty four (see Figure 6.9). As found by Abay and Hirvonen (2016), the number of child malnutrition cases increases as distance from the main town and major markets increase. When the case numbers per capita are taken into account in each district, the difference increases further (during this time period, Sodo Zuria 1 per 48,002, Damot Woyde 1 per 11,317 and Daguna Fango 1 per 4,592). Although not a robust study, the findings in Wolaita align with those of Abay and Hirvonen (2016), suggesting a positive impact of market access on reducing child malnutrition. However, this analysis and that of Abay and Hirvonen (2016) do not taken into account overlapping factors, such as transportation infrastructure and access to hospitals and health centers. Further research is required that integrates different layers of variables for a more robust geospatial analysis.

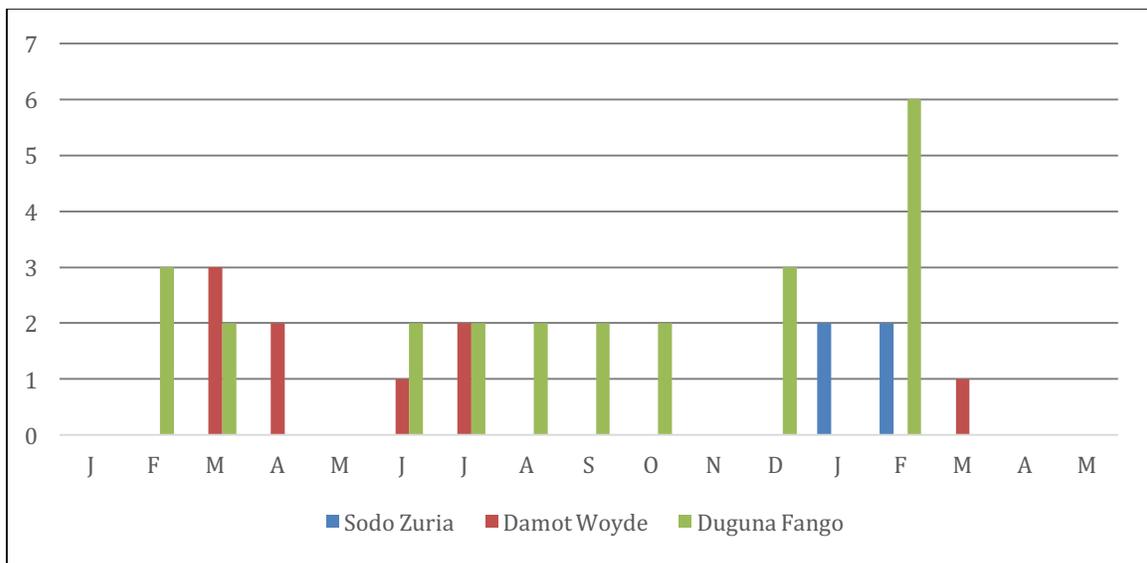


Figure 6.9 Impact of Market Access on Child Malnutrition

Source: Wolaita Zone Health Office (Jan, 2012 to May, 2013)

The irrigation scheme that exists in Buge (see Figure 6.10), due to its transformative impact of reducing the risks of rainfall insecurity and upon community-level food security, warrants additional attention. An emphasis is important because common responses by NGO and governmental actors to proposals of irrigation infrastructure are that it is too costly. In the case of Buge, the Government of Greece's official development assistance was used in collaboration with the regional state of SNNPR to construct a gravity-fed irrigation system that requires no motors or electricity, and was almost entirely constructed out of locally-sourced materials. It was completed around 2006, and uses the contours of the valleys, and the rainfall of the two rainy seasons, to fill a moderate size reservoir for use throughout the year. The dam was almost entirely built out of blocks of broken rock, with machinery being brought in to deepen the collection reservoir, and cement was used with large stone blocks for the primary irrigation canals. Each morning a valve is opened for one hour, bringing water to 240 households throughout the year.²³ The households who receive this water went from having irregular harvests, usually one or two, to consistently having three or four harvests annually, and were able to diversify their crops, most notably adding vegetables (specifically: tomato, cabbage, peppers and carrot, produced throughout the year). The cost, at the time of construction, was ETB 5,000,000 (\$550,000 USD in 2006), which is only two percent of a single year of NGO activity in the zone (as noted above, USD 27.5 million was approved for NGO activity in a single year, with no irrigation included in the plans). Furthermore, community members themselves took part in the construction, and with their newfound skills and knowledge built a second, smaller and shallower reservoir for livestock without any external support.

²³ In Chapter 5, a figure of 140 households was listed. This was the estimated number of households with access to primary or secondary irrigation canals. It was estimated that another 100 households gain access via tertiary canals, which are included in this figure.



Figure 6.10 Irrigation Water Reservoir in Buge

Source: Author

As one community member explained, infrastructure is beyond the capacity of the community to construct, but a necessary addition to strengthen their livelihoods:

For food security, for us with the changing weather, we need irrigation. We have rivers. If the government facilitates irrigation it will help us immensely. It is beyond our capacity to build these canals, but we are willing to extend our hands to have irrigation. (Community Member, Buge)

Of note in Buge is that on the side of the community with irrigation the benefits have changed people's lives, and the transformation is emphasized as they compare their situation with their fellow community members without irrigation. Those without

irrigation, community members explained in focus group discussions, remain reliant upon rainfall, have fewer and smaller harvests and cannot grow the same crops. The long-term impacts were also noted: educational attainment was lower and unskilled, distress migration of youth more common.

Poverty

“Poverty,” Gibson notes (2012: 492), “is perhaps the single biggest obstacle to achieving food security.” The challenges related to poverty were confirmed in the communities studied, and are made explicit within the stages of food security process. The focus group discussions assessed factors that differentiate community members into three segments, on a spectrum of relatively food secure to very food insecure. However, throughout the communities chronic poverty is the norm. On average, households experience several months of food shortages annually. With the rare exception of those living near to a road, none had electricity nor clean water access at their homes. Only a minority had access to radios or mobile phones (see Table 6.4). According to Rahmato’s (2007) assessment of minimum land size required for a subsistence livelihood, average land sizes were insufficient throughout. As outlined in the Chapter 2, land sizes have been steadily declining due to inheritance fragmentation, and increases in productivity per hectare have not been able to maintain levels of output per household as a result.

Table 6.4 Household Assets by Community

Community	Metal roof (%)	Radio (%)	Mobile phone (%)
Adeaaro	87	19	39
Adea Ofa	60	12	34
Buge	80	33	52

The cross community assessments of assets in Table 6.4 sheds light on how geospatial factors impact poverty. However intra-community differences are just as important to consider. The distribution of assets within the communities shows that inequality, when geospatial factors are shared, is still significant (Table 6.5). Both the inter- and intra-community assessments demonstrate that the factors identified by community members are important markers for identifying differences. And, importantly, the divergences between the relative food secure and insecure were not uniform across communities. For example, in Adea Ofa cattle holdings were not correlated with levels of radio ownership, but were for mobile phone ownership. This was not the case in the other two communities, where cattle holdings were associated with different levels of assets. This highlights the highly localized nature of food security and the unique roles of the identified factors.

Reflecting upon the poverty proxies it might appear that the location has a greater influence due to access. For example, mobile coverage does not extend to much of Adea Ofa and therefore it may be assumed that the level of ownership would be consistently low. However, in Adea Ofa those with land holdings resulting in them being considered food secure had a much higher ownership of mobile phones (49%) than those with the holdings typical of food insecure households (30%). The different levels of mobile ownership are indicative of how often the respective household members frequent areas where mobile coverage exists.

Table 6.5 Intra-community Asset Differences

Community	Food security status	Selected factor*	Metal roof (%)	Radio (%)	Mobile phone (%)
Adeaaro	Secure	Land holdings	100	8	50
	Insecure	Land holdings	77	17	35
	Secure	Food Shortages	100	31	63
	Insecure	Food Shortages	83	8	30
	Secure	Cattle holdings	100	67	83
	Insecure	Cattle holdings	75	14	28
Adea Ofa	Secure	Land holdings	76	18	49
	Insecure	Land holdings	46	12	30
	Secure	Food Shortages	86	30	67
	Insecure	Food Shortages	55	9	30
	Secure	Cattle holdings	70	11	60
	Insecure	Cattle holdings	56	11	29
Buge	Secure	Land holdings	88	38	60
	Insecure	Land holdings	66	27	47
	Secure	Food Shortages	86	59	64
	Insecure	Food Shortages	75	21	54
	Secure	Cattle holdings	94	56	63
	Insecure	Cattle holdings	73	33	37

*As outlined in the Stages of Food Security assessment above.

Location

A primary differentiating factor for food security is location, and specifically the location of the community (as opposed to the place of an individual household within a community). This largely depends on the infrastructure and services that are, or are not,

available as a result of where one lives. Household assets, shown above in Table 6.4, highlight these significant geospatial differences, with fewer households in Adea Ofa having a metal roof, a radio and a mobile phone. Consider the proxy measures of poverty outlined in Table 6.6: the average time households were food insecure ranged by almost a month, safety net coverage (a reflection of food insecurity) was significantly less in Buge, and the ability to afford education for all children ranged widely. This demonstrates the impact of location on poverty proxy measures, as well as on food security, health and education.

Table 6.6 Poverty Proxy Measures by Community

Community	# Months food insecure	% in safety net (any time)	Afford education for all (%)
Adeaaro	4	21	38
Adea Ofa	4.3	22	47
Buge	3.5	12	61

However, inequality within communities ought not be overlooked, or assumed to be equal due to similar rural settings. Table 6.7 analyzes the intra-community poverty proxy measures. The results indicate some interesting trends. For example, for the poverty proxy measures the greatest differences existed in Adeaaro for cattle holdings, in Buge for land holdings, and in Adea Ofa the trends were similar. Also, while the safety net program is designed to support food insecure households, data from Buge suggests that it is more aligned with asset holdings (land and cattle) than with food insecurity. This trend was not evident in Adeaaro, suggesting that the targeting and implementation of the safety net differs at the community level, rather than as a systemic problem with the program. In general, these findings support previous studies that show that the safety net program is well targeted (e.g. Coll-Black et al, 2012). The safety net would be improved if the implementation was done as outlined in the design documents, which includes transparent community-based selection processes and mechanisms for addressing

concerns (Cochrane and Tamiru, 2016). As with the intra-community disaggregation of assets, Table 6.7 shows the importance of the poverty proxy measures in understanding inequality within communities.

Table 6.7 Intra-community Poverty Proxy Measure Differences

Community	Food security status	Selected factor*	% in safety net (any time)	Afford education for all (%)
Adeaaro	Secure	Land holdings	8	58
	Insecure	Land holdings	20	32
	Secure	Food Shortages	13	64
	Insecure	Food Shortages	29	30
	Secure	Cattle holdings	0	100
	Insecure	Cattle holdings	26	23
Adea Ofa	Secure	Land holdings	4	71
	Insecure	Land holdings	34	40
	Secure	Food Shortages	14	75
	Insecure	Food Shortages	26	33
	Secure	Cattle holdings	9	64
	Insecure	Cattle holdings	37	37
Buge	Secure	Land holdings	5	73
	Insecure	Land holdings	27	21
	Secure	Food Shortages	5	63
	Insecure	Food Shortages	13	58
	Secure	Cattle holdings	13	94
	Insecure	Cattle holdings	23	37

*As outlined in the Stages of Food Security assessment above.

Agricultural and livestock assets generally reflect the same food security trend found across the communities: the community with irrigation, Buge, had the highest average asset levels, followed by Adeaaro, located near to a market place and town, and then Adea Ofa, the most remote of the three (see Tables 6.8 and 6.10). The exceptions in Adea Ofa for some of these livelihood assets (e.g. enset and livestock) are best understood as the residents of that community are more reliant upon agriculture as a primary livelihood activity, whereas those living in Adeaaro have the opportunity to commute daily to the nearby town of Boditi, which is within walking distance.

Table 6.8 Average Number of Fruit Trees by Community

Community	Avocado	Mango	Banana	Coffee	Enset
Adeaaro	1.8	1.0	7	9	35
Adea Ofa	1.2	0.3	5	13	65
Buge	2.3	1.3	17	28	65

There are community level factors that affect fruit trees ownership, such as access to nurseries, but the intra-community factors, such as land size, affect how individuals are able to take advantage of those opportunities. When looking at land size, which is key for fruit trees as they take significant amount of land out of annual crop production, the intra-community differences are just as significant (Table 6.9). The difference is less stark for mango and avocado trees, for which households commonly try to plant one tree, but is significantly different for coffee and enset trees, which are planted in much larger numbers.

Table 6.9 Average Number of Fruit Trees by Food Security Status

Food Security Status	Avocado	Mango	Banana	Coffee	Enset
Secure	2.3	1.1	15.3	27.6	85.4
Insecure	1.3	0.7	6.1	7.9	30.9

The trends are also found for livestock holdings: the inter-community differences are important, but even greater differences are found within communities. Table 6.10 shows the average livestock holdings by community, and Table 6.11 shows the difference of livestock holdings within communities based on the land size measurement identified by community members. For some livestock, the differences between communities appears to play a greater role, such as for donkey and hybrid chicken holdings, while in others the land size plays a greater role, such as for sheep and local chicken holdings. This point has been alluded to earlier, as location affects the necessity of donkey transportation as well as accessibility of hybrid chicks. On the other hand, poverty impacts households within communities in being able to acquire local chicks and land size affects the ability of households to acquire sheep. Generalizations cannot be drawn about livelihood choices. Rather, nuanced analysis requires a crop and livestock specific assessment in order to explore which are influenced by geospatial factors and which by community-level inequality.

Table 6.10 Average Livestock Holdings by Community

Community	Oxen	Dairy cattle	Calves	Donkeys	Sheep	Hybrid chickens	Local chickens
Adeaaro	0.4	0.7	0.6	0.04	0.6	0.2	0.7
Adea Ofa	0.7	1.0	1.1	0.10	1.0	0.1	1.1
Buge	0.9	1.1	0.7	0.12	0.9	0.5	1.5

Table 6.11 Average Livestock Holdings by Food Security Status

Food Security Status	Oxen	Dairy cattle	Calves	Donkeys	Sheep	Hybrid chickens	Local chickens
Secure	1.0	1.3	1.2	0.1	1.2	0.4	1.6
Insecure	0.3	0.6	0.6	0.05	0.5	0.2	0.8

Hybrid chickens are a good example of a relatively low cost investment (compared to a donkey or motorcycle) that only a few households are able to take advantage of due to the risk of failed returns. A single chick costs seventy ETB, which offers a source of income from egg production. However, in places such as Adea Ofa, livestock vaccinations are unavailable, and disease can cause significant losses. A project supported by Save the Children in Benishangul Gumuz Regional State provided hybrid chicks as an income generating business opportunity. However, in one community I visited every single chick was lost due to disease. In Adea Ofa, community analyses of this finding add that while “animal health extension is present [in Adea Ofa], it is an hour walk from their part of the community, and that Animal Health Post has no vaccines.”

The intra- and inter-community figures are averages, and only indicate macro-level trends at the community level. Nonetheless, there is a clear indication that for some measures location plays a key role for enabling opportunities or enacting barriers to them. These demonstrate the ways in which geospatial factors significantly alter the dynamics of poverty, and thus food security, within communities. In particular, the findings show how community members respond to opportunities and barriers. Shortages of land, livestock and crop diversity at the community level are mitigated by other strengths. For example, the daily labor opportunities that exist for people in Adearo represent an income opportunity, important for households that have minute land holdings wherein agricultural outputs cannot meet demands. Yet, these labor opportunities are often unskilled, irregular positions with low pay. As a result, the profile of food security is not significantly different from that of Adea Ofa, which does not have the option for daily

commutes for labor work, and draws upon other resources and strengths (e.g. relatively larger land sizes).

Education

The stages of food security assessment demonstrated that the food security demographics in Adeaaro and Adea Ofa, despite being situated in significantly different contexts, were quite similar. It was only Buge, the community with irrigation, that had a profile with greater food security. In the case of educational attainment, a different trend is found (see Chart 6.9). For educational attainment, the profile of Adea Ofa and Buge are similar, while Adeaaro has far fewer people with high levels of educational attainment. The highest educational attainment of half of all households in Adeaaro was Grade 4 or less, and far fewer households had a member who had attended university. This finding is counterintuitive because Adeaaro has much greater access to education due to its proximity to schools in Boditi town. Whereas children in Adea Ofa only have access to Grade 8 education within their community, after which they must travel to Adeaaro to continue. However, it was Adeaaro that had the fewest households that have attained a level of education beyond Grade 8.

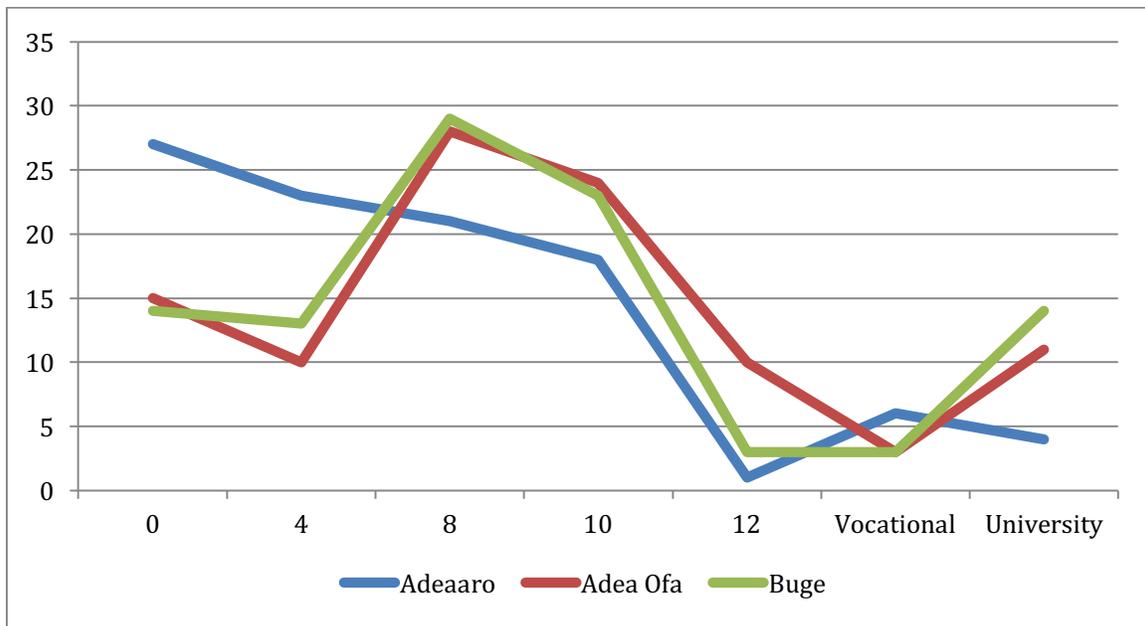


Figure 6.11 Highest Average Educational Attainment in Household (%)

Source: Data provided by the Zonal Administrative Office on May 14th, 2015.

Upon reviewing this result, my initial response was that this finding may be incorrect. However, a professor at Wolaita Sodo University, who conducted research in Wolaita on livelihoods, also found that the community nearest to Boditi town had lower educational attainment than communities located farther from it (Gecho, 2014). While the communities in that study were different, the distances were quite similar: the nearest community approximately five kilometers from Boditi town and the further ones twenty to thirty kilometers away, mirroring the distances of the three communities in this study. Dr. Gecho was unaware of why this educational divergence occurs, but speculated it may be related to the fact that more youth leave school to engage in labor activities within Boditi town, being exposed to these opportunities more often than those in further communities.

As shown in Table 6.7, the ability to afford to send all children to school was greatly influenced by the household situation. Notable, however, is that in terms of poverty proxies and food shortages, Adeaaro had higher averages than Adea Ofa and lower

averages than Buge, but has a much different educational attainment profile. In order to gain insight into why this may be the case, a series of individual interviews were conducted within Adeaaro. Most who were interviewed were unaware of the differences, but when the results were explained many suggested that Adeaaro's nearness to the town, and therefore opportunities for youth, was a primary reason for higher dropout levels and potentially the lower educational attainment. Some community members felt the difference was due to greater levels of poverty, which is true in comparison to Buge, but not Adea Ofa. The school principal, who was relatively new to the community, was unaware of the differences and unsure why such divergences may exist. A local governmental development agent also felt the reason for lower education attainment in Adeaaro was due to more youth leaving school to engage in labor activities and small-scale trade, but also highlighted a past experience wherein education was discouraged, particularly within livestock holding households of Adeaaro. This was primarily because the income potential from raising livestock was much greater than obtaining a primary education.

Similar to the development agent, several elders said that when they were young the focus was on farming activities and education was not valued, an experience that community members suggested was more common in Adeaaro than the neighboring communities. They suggested the low value of education continues, but instead of prioritizing agricultural activities the youth focus on trade and off-farm opportunities. While these interviews did not agree upon a specific reason, it appears that poverty combined with nearby alternatives, and the connections required to take advantage of them, as well as the potential for a lower valuing of education all contribute to the lower educational attainment. However, this is an area for future research, particularly because multiple, unrelated studies have identified this trend, and its explanation remains speculative.

Table 6.12 Highest Level of Education in Household (%)

Community	0	4	8	10	12	Vocational	University
Adeaaro	27	23	21	18	1	6	4
Adea Ofa	15	10	28	24	10	3	11
Buge	14	13	29	23	3	3	14

The household surveys indicate that educational attainment in households of all three communities is low: the highest educational attainment in the majority of households in all three communities was Grade 8 or lower. This might seem difficult to reconcile with high rates of current enrolment, but educational systems take time to develop, and once available education takes time to obtain. For example, if a new school was proposed in 2005 and finalized in 2007, it would take a full educational cycle (4-8 years) for those attainments to be reflected in the data, and that assumes the individuals remain within the household. Current educational enrolment data from Wolaita Zone does suggest these trends are changing, albeit slowly. According to data from recent years, many more are continuing into Grades 9 and 10 (see Table 6.13). Based on the slow rate at which highest educational attainment changes, the household survey data ought to be considered in light of the historical lack of access to schooling beyond Grades 4 or 8 (these are the cycles of grades offered in the Ethiopian educational system), and recent trends demonstrate that improvements are, slowly, being made to ensure all children have access to primary education. This change has the potential to bring about significant, long-term positive impacts. Bezu and Barrett (2010) find education is the most important determinant of non-farm employment in rural Ethiopia. Additionally, families recognize the opportunity education offers and invest in education as a long-term mechanism to overcome existing and future challenges (Cochrane and Gecho, 2016).

Table 6.13 Educational Enrolment Rates in Wolaita²⁴

Grades	School-aged population	Enrolled	Percent enrolled
1-4	301,687	270,726	89.7
5-8	187,505	143,590	76.6
9-10	102,961	43,387	42.1
11-12	79,470	12,580	15.8

Source: Data provided by the Zonal Administrative Office on May 14th, 2015.

In the focus group discussions seasonal dropout of school was raised as a significant concern, and as something that does not appear in enrollment statistics, although it would if levels of absenteeism were tracked. However, the zonal office does not track rates of absenteeism, making this component invisible to higher authorities. During the agricultural season when more labor is needed, or during periods of food shortages, children and youth stop their education to work on the farm or to obtain short-term labor work. Research in southern Ethiopia supports this concern, finding that the frequency of absenteeism is much higher within food insecure households (Tamiru et al, 2016).

On the other hand, within the focus group discussions there were several intense debates about the negative impacts of education. Specifically, some felt that when higher education is obtained, the youth then leave the household seeking work elsewhere, resulting in a loss of labor for the family and upsetting the balance of working aged members with those who depend upon their labor. It was explained in Adea Ofa: “when these youth leave it is a big challenge. They migrate for a better life, but the family needs their labor as the parents get older.” Many elderly family members worried that in the future there would be an insufficient number of youth to ensure the elderly and children would be cared for, as more and more youth leave their communities. The concern is

²⁴ The grouping of grades follows the cycles of education in the Ethiopian education system. Data for the School Aged Population was obtained from the Wolaita Zone Administration Office for 2012. Data for those enrolled was obtained from the Wolaita Zone Administration Office for 2013. I recognize that the different comparison years do not allow for exact percentages. Due to data availability limitations, I present approximate figures to demonstrate the extent of dropout rates.

rooted in the fact that throughout SNNPR there is a population pyramid whereby nearly half of the population is below the age of fifteen, and thus large burdens are placed upon adult members to provide for the needs of dependent children. The lower parts of the pyramid (the percentage of the population of young children), remains the largest, as the new potential laborers to replace or support elders are lost to migration. While farm labor shortages pose challenges, the gendered burden is unequal as caring for dependent children and elders falls upon women.

The concerns related to education and migration are common throughout much of rural Ethiopia (e.g. Nasir and Hundie, 2014), and as households experience challenging transitions there are few easy win-win choices. When youth and young adults migrate, the ratio of adults to dependent children or elders increases, placing significant additional pressure on the household. In this study the average ratio was 2.1 working age individuals (self-defined, not legal definition) to every dependent member. In contrast with Gecho's (2014) finding that a greater dependency ratio is correlated with greater food insecurity, in these three communities the dependency ratio did not vary significantly by community. When the dependency ratio is assessed according to status of food shortages across the communities, there is also little difference (2.2 for the food secure, and 1.9 for the food insecure). The immediate and systemic impacts of education on smallholder households, including the loss of labor and decline of traditional ecological knowledge, are worthy of further study within Wolaita, and may uniquely contribute to the associated literature addressing these concerns.

Inequality

Within communities, inequality results in some segments of society experiencing greater vulnerability to food insecurity than others. As demonstrated by the distribution of the stages of food security above, the most food insecure households range from a third to a half of all households. These families lack land, labor and assets and many face daunting burdens of ill-health, disability or old age, often without support, and occasionally with compounding burdens. As outlined above, however, households challenged by the factors

linked to food insecurity, such as land size, livestock and fruit trees, are not necessarily the same households. In other words, these factors do not always overlap within households. As a result, the findings of the stages of food security assessment ought not be understood as identifying those households in which all the factors are found, or the greatest number of them. Challenges and opportunities vary, and thus communities are better conceptualized as a complex dynamic system wherein households experience food security in diverse ways. With this framing, it is possible to understand how eighty five percent of households in all of these communities experience two or more months of food shortages annually, and are therefore chronically food insecure (the inclusion of two or more months combined two of the stages of food security, see Table 6.3).

Although the Derg regime posed numerous challenges, the land redistribution it undertook (detailed in the following chapter) provides a degree of insight into the processes that shape inequality. During that time, large landholders had their land taken away, limits were imposed and plots were redistributed. To this day, at least in theory, the 'land bank' system functions so that if land returns to the government, such as the result of a death without heirs, it is redistributed to landless members of the community. The implementation and effectiveness of this system will not be explored here. The point is that within the last half century a degree of household-level land equality was attempted, and today significant inequality is apparent. The causes of land loss are highlighted throughout this and the next chapter, and include: fragmentation due to inheritance, government appropriation, debt (formal and informal), and an inability to utilize the land due to ill-health or insufficient labor. Based on the household survey, averaged across the three communities, nine percent have 0.5 *temut* (under 0.125 ha), sixty percent have between 0.5 and 1.0 (between 0.125 and 0.25 ha), and thirty one percent have more than one *temut* (more than 0.25 ha), of that final group, however, only thirteen percent hold more than three *temut* (more than 0.75 ha). These landholdings are small, even the largest of them. What is emphasized here is relative differences, and relative inequality. The findings within Wolaita are mirrored elsewhere in Ethiopia, wherein the gap of landholding assets has widened since the Derg redistribution, due to economic reasons as well as population growth and limited land availability (Tolossa, 2003).

There is also inequality between communities, apparent when one compares Adeaaro and Adea Ofa to the areas of Buge served by irrigation infrastructure. Elders in Buge commented that “we see most of the youth leave from the non-irrigated land, and this is because of their poverty and difficult situation.” The household and land size are similar, the elders pointed out, “but they cannot meet the needs of the household.” In contrast, youth from “households with irrigation tend not to leave, except for university.” The opportunities of greater and consistent yields translate into higher levels of education and therefore skilled migration. In contrast, the non-irrigated land is subject to variability, thus increasing vulnerability, and causing distress migration for unskilled labor work.

Community analyses of the survey results in Adea Ofa explained that the high levels of migrants, and specifically unskilled migrants, were due to these communities lack of accessible employment (i.e. impossibility of commuting as a day laborer) and their relatively more impoverished and food insecure situation. Although one assumes that labor opportunities that require greater skill or capacity have higher returns, it is also a worthwhile exercise to verify this assumption. Using ten years of panel data from Ethiopia, Bezu and Barrett (2010) find that this is indeed the case, and also that women have lower participation than men, and when they do participate in non-farm activities it tended to be unskilled, reflecting socio-cultural barriers as well as skill and resource limitations.

The nature of unskilled migration in these communities in Wolaita was due to a greater inability to afford education for all children, resulting in many within the household not obtaining education beyond Grade 4 or 8. As was stated emphatically in Adea Ofa, “no one who had obtained a university education stayed.” Thus, the educational differences, explained earlier, are best contextualized with data on youth migration (see Table 6.14). However, education is not the sole determinant. In communities where there were more viable farming livelihoods, due to factors such as land size or irrigation, fewer unskilled youth left as migrants, thus indicating that vulnerability plays a key role as a push factor in unskilled migration. Cochrane and Vercillo (2017) call this migration by necessity; others have termed it distress migration (Loevinsohn, 2012) and migration as a forced response (Turin and Valdivia, 2012). These short-term, often seasonal influences are also

impacted by long-term trends of land fragmentation, resulting in few options for viable rural livelihoods, and therefore the youth seek alternatives (Bezu and Holden, 2014).

Table 6.14 Migration Levels by Community

Community	% with migrants	Of those, % skilled labor	Of those, % unskilled labor
Adeaaro	28	16	84
Adea Ofa	50	21	79
Buge	36	43	57

Exploring migration in relation to food security provides insight into the existing literature. For example, seasonal migration has been associated with poor early childhood development (Dereveux, Sabates-Wheeler and Longhurst, 2012). This research suggests that it is not migration that is correlated with negative childhood development outcomes, as some migrants move to permanent, relatively well paying positions. Rather, it is chronic food insecurity that has caused malnutrition in children and is also a primary cause of unskilled migration, that potentially explains why migration was correlated with this negative impact on early childhood. As the data from Wolaita shows, the majority migrants were from food insecure households seeking unskilled labor positions, and the averages may make the smaller number of skilled migrants ‘invisible’ in the data.

It is noteworthy that when disaggregating the data according to a selection of variables identified by community members, a different picture emerges than that provided by the community level one, but this requires some contextualization (Table 6.15). For example, in Buge, food secure households have more skilled and unskilled migrants based on land size. This is a product of higher average land sizes overall, and therefore represents a greater percentage due to so few households being considered insecure according to their land holdings. Looking at the other two factors in Buge (food shortages and cattle holdings), there is alignment with the overall trend that greater food security is correlated

with more household members migrating for skilled labor and greater food insecurity correlating with more unskilled labor migration.

Table 6.15 Migration Levels within Communities

Community	Food security status	Selected factor*	Of migrants, % skilled labor	Of migrants, % unskilled labor
Adeaaro	Secure	Land holding	40	11
	Insecure	Land holding	30	46
	Secure	Food Shortages	20	11
	Insecure	Food Shortages	40	50
	Secure	Cattle holdings	10	11
	Insecure	Cattle holdings	30	61
Adea Ofa	Secure	Land holding	63	35
	Insecure	Land holding	19	15
	Secure	Food Shortages	19	17
	Insecure	Food Shortages	33	50
	Secure	Cattle holdings	34	4
	Insecure	Cattle holdings	33	46
Buge	Secure	Land holding	84	73
	Insecure	Land holding	6	15
	Secure	Food Shortages	39	32
	Insecure	Food Shortages	10	54
	Secure	Cattle holdings	87	17
	Insecure	Cattle holdings	7	46

*As outlined in the Stages of Food Security assessment above.

While the disaggregated community-level figures for Buge were skewed by higher overall average land sizes, the inverse was the case for Adeaaro, where average land sizes were smallest and where very few skilled migrations had taken place (a total of 10 individuals, compared to 54 unskilled migrants from the same community). Thus the figures ought to be read within their relative contexts. As with the apparent anomaly in Buge, when the context is taken into account for Adeaaro, the trends remain consistent for other variables, reinforcing the conclusion that unskilled migration is a product of vulnerability and necessity. Skilled migration, on the other hand, is a purposeful choice seeking opportunity built on a foundation of greater, and longer term food security, assets and relative wealth.

Community members felt that migration was important to include in the household survey, and suggested that metrics explore the nuances of migration, specifically between skilled and unskilled migration. The results tell an important story about inequality between communities: while Buge has a similar number of households with migrants, they are far more likely to be skilled migrants, obtaining permanent jobs that are well paid. Migrants from Buge are twice as likely as those from Adea Ofa to be skilled, and almost three times more likely than those from Adeaaro. Those migrating for skilled labor do so because of options, opportunities and choice, whereas the majority of those migrating for unskilled labor are doing so because of necessity. The co-production of questions and metrics highlighted key differences such as these, and identified important details, which tend not to be included in surveys assessing food security.

The gendered nature of youth migration also tells an important story of gender inequality (as outlined in Cochrane and Vercillo, 2017). Much of the literature on youth migration highlights the flow of young men from rural areas to towns and cities (Quisumbing et al, 2014; Shipton, 1990), whereas in Wolaita many young women are also migrating. Both young men and women are pushed by poverty and food insecurity, and the precarious work they obtain often fails to meet their basic daily needs. Yet, young women who were interviewed who had migrated from Damot Gale into the nearest town, Sodo, explained that they were pushed to migrate because of gender discrimination, particularly the land fragmentation and extremely low likelihood of inheriting land: only three percent of land

holders in Ethiopia are women and only six percent were even considering bequeathing to daughters (Bezu and Holden, 2014). While all migrants, regardless of gender, cited challenges of land shortages that pushed them to migrate, young women experienced disproportionate exclusion and expressed that there were no opportunities for them in rural areas. This burden is magnified as it is mirrored in educational attainment and therefore also in non-farm opportunities (Bezu and Barrett, 2010).

Kubik and Maurel (2016), drawing upon research conducted in Tanzania, link climate change and weather-related shocks to agricultural production and migration. Specifically, they find that a one percent reduction in agricultural income as a result of climatic and weather-related events increase the probability of migration by thirteen percent for the year following that loss, but the effects were not equal for all wealth categories. This study provides qualitative and proxy data to suggest that a linkage exists between food insecurity, agricultural productivity and migration, but more research is required to draw more explicit conclusions. The division of skilled and unskilled migration categories that was proposed by community members for this study has been utilized by other researchers working in Ethiopia previously. For example, Bezu and Barrett (2010) utilize a similar division and analyze long-term data, finding similar trends to those identified in this study, although less emphasis was given to the ways in which some non-farm options are expressions of vulnerability or maladaptation. The mixed-methods approach, in this instance the qualitative data, enabled these details to emerge.

Inequality can be expressed and assessed in diverse ways, beyond the common analyses of land and livestock. Consider the emphasis some communities laid upon access to water and firewood, the latter being particularly important because electricity is unavailable. In fact, a lack of access to water was raised by many as the greatest challenge they face. In Adea Ofa and Buge the average walking time to obtain water was 1-1.5 hours daily (the reservoir in Buge is not suitable for drinking water, as it is a still pool used by livestock). In Adea Ofa the water that was collected was from a natural spring and carried in twenty or fifty liter containers. However, this spring is located at the bottom of a steep valley, and during the rainy season it becomes inaccessible, resulting in the only water source being the seasonal river, which is a source of cholera and other water-borne diseases. In 2016, a

large cholera outbreak occurred throughout SNNPR during the rainy seasons (WHO consultant, personal communication 19 May 2016) and these rivers, the only source of drinking water for some communities, are one of the primary vectors for its spread.

Table 6.16 Time Spent Collecting Water and Firewood (minutes)

Community	Water	Firewood
Adeaaro	15	14
Adea Ofa	55	64
Buge	82	9

In contrast, Adeaaro is relatively near to improved water sources and has much better access to firewood. Considering that obtaining water and firewood are regular, often daily, activities, these community-level inequalities consume large amounts of time. This is time that could be used in other activities; one study in Ethiopia finds that a reduction of time spent in obtaining water results in an increase of food consumption (Aklilu, 2013). Accessing water and firewood are two, of many, reasons why labor is required to support the household, causing children to be frequently absent from school, or to drop out entirely.

To gain a better idea of the time that individuals within households devote to certain tasks, and also to gain insight into the gendered nature of activities, I had household members from a series of randomly selected households from all three communities track their time (see Table 6.17).

Table 6.17 Tracking Time by Activity and Gender (Averaged by Community)

	Adeaaro		Adea Ofa		Buge	
Time	F	M	F	M	F	M
6-7			Clean		Milk Cows	Farm
7-8	Cook Clean	Farm	Cook	Eat	Cook	Farm
8-9	Eat	Eat	Get water	Eat	Eat	Farm
9-10	Wash	Farm	Get firewood	Farm	Clean Process butter	Eat
10-11	Get wood Get water	Farm	Clean	Farm	Wash clothes Collect grass	Farm
11-12	Trade	Farm	Cook	Farm	Get wood	Farm
12-1	Cook	Eat	Eat	Eat	Cook	Farm
1-2	Eat	Rest Socialize	Clean	Rest	Eat	Eat
2-3	Collect grass	Farm	Rest	Farm	Get Water	Collect grass
3-4	Feed livestock	Farm	Get firewood	Farm	Get Water	Feed livestock
4-5	Feed livestock	Collect grass	Childcare	Farm	Collect grass	
5-6	Childcare	Feed livestock	Housework	Relax	Feed livestock	Eat
6-7	Market	Trade	Cook	Market	Cook	
7-8	Cook	Rest	Eat	Market	Eat	Rest
8-9	Eat	Eat	Rest	Eat	Rest	
9-	Rest Sleep	Rest Sleep	Sleep	Sleep	Sleep	Sleep

Table 6.17 is a combination of recurring themes from the time tracking exercise meant to highlight a typical experience. What is immediately clear is that rural life in Wolaita is highly gendered. Men are primarily occupied with farming and livestock related activities, while women acquire water and wood, prepare the meals, care for children and maintain the household. Both genders mentioned going to the market regularly, which includes local trading areas, not only the marketplace in Boditi town. The burden that water and firewood place upon women, consuming hours of work every day, highlights how the

inequalities that exist between communities places unequal and significant burdens upon them. Where water and firewood are available men's responsibilities and activities remain relatively constant. Thus, interventions ought to be considered as having gendered impacts. Improved access to water improves health as well as reduces unequal burdens on women. Access to electricity reduces deforestation, improves health and reducing time required for meal preparation, as well as reduces unequal burdens on women.

Conversely, interventions that improve cattle sales through regional markets tend to benefit men while dairy related income generation activities support women but also place a greater burden on them, as they are responsible for milking dairy cattle and preparing butter. Ensuring that women have the opportunity to engage in new income generating activities may require freeing time from a full schedule, such as by improving access to water and electricity.

This section analyzed a selection of intra- and inter-community inequalities in order to highlight how food security is increased or decreased by inequalities. Between communities, this includes differential access to clean water, and the impact of migration due to unequal educational and work opportunities. Within communities, inequalities of land, labor and assets impact what resources a family can draw upon to strengthen its food security. Within households, gender is a key factor of social differentiation and cause of inequalities. In addition to exploring the existence of inequalities, this section highlighted how interventions must be considered in light of inequalities, as their impact will differ between and within communities, as well as within households. Yet, these are only some of the many ways in which such inequalities are manifested. They also exist in gendered educational opportunities (Rose and al-Samarrai, 2001), nutrition (Decron and Singh, 2011), access to markets (Aklilu et al, 2007; Geleta, 2016), access to programs and services (Peterman, Behrman and Quisumbing, 2010; Ragasa et al, 2013), and vulnerabilities (Holmes and Jones, 2010; Uraguchi, 2010; Turin and Valdivia, 2012), amongst others.

As a final note, gendered impacts of change ought not be assumed to always benefit males more than females. In some cases the dynamic is the opposite, as demonstrated in the trends of urban poverty reduction in Ethiopia (Jayamohan and Kitesa, 2014). Much more

research is required on these expressions and intersections of inequality. At the same time, however, the problematic nature of rural, agricultural extension services having a gendered bias is not new. Percy (2000) wrote about a two-year FAO project started in 1994 that identified the issue. The problem with these analyses, however, is that they fail to take into account the political purposes of these programs, and, as de Waal notes (2015), fail to see how and why these programs actually operate. And, furthermore, why a recommendation in 2016 may have as little impact as the same one made two decades earlier.

Diversity

The diversification of activities takes many forms in Wolaita. This sub-section focuses upon three: crops, livelihoods and finance. The literature on Ethiopian agricultural and pastoral livelihoods tends to emphasize the value and importance of diversification (e.g. Barth, 1964; Gecho et al, 2014; Headey, Taffesse and You, 2014; Mergersa et al, 2014; Tsegaye, Vedeld and Moe, 2013; Yosef et al, 2013). However, in all three areas this research finds that diversification is not necessarily good, or necessarily a sign of improved resilience, risk mitigation or a broadening of opportunities. Diversification can be the result of vulnerability and an expression of difficulty, as opposed to strength. Similarly, a reduction of diversity can result in an improved situation, such as through focusing on higher value crops with stable prices and networks for sale.

With regard to agricultural diversity, the community with the strongest food security (Buge), and where risk due to water stress was least due to irrigation infrastructure, that crop diversity was lower (average 5.8 crops per households) than the other communities (Adeaaro and Adea Ofa: average 6.7 crops; Cochrane and Gecho, 2016). This, however, is only one part of a complex agricultural response to options and opportunities. While diversification to more crops in areas where poverty proxies and food insecurity are higher reflects the level of risk, and respective efforts to mitigate negative outcomes, these tend to take the form of diversification to shorter-cycle crops, such as beans and pulses. These forms of diversification focus on crops with lower yields per hectare, and while

mitigating climatic risks, they decrease agricultural output. Farmers argue that they would grow long-cycle cereal crops, but fear that if the rains fail, the entire yield will be lost. Short-cycle crops also address food shortages in the short-term. The shift from higher-yielding crops to lower-yielding crops due to vulnerability is not a unique finding. In a long-term study in southern Ethiopia, Tsegaye and Struik (2002) found that households with relatively middle or lower levels of resources grew fewer perennial crops, focusing on shorter-term seasonal crops, which they found was also impacted by available land.

Whereas, the diversifications occurring in Buge, where average food security is stronger and relative wealth is higher, are fewer in number and take different forms. Generally, these could be classified as higher-cost options that have the potential to offer increased income, despite having indirect costs, such as multi-year delays to obtain returns or the cost of vaccinations. Diversifications of this nature that have indirect costs include planting avocado trees (average 2.3 versus 1.5 per household) and purchasing hybrid chicks for egg sale (average 0.5 versus 0.1 per household; Cochrane and Gecho, 2016). In these examples, the costs differ, but both have direct (investment capital) or indirect (delay of return or vaccinations) costs. Community members in Adeaaro and Adea Ofa knew about these diversification options, but were unable to overcome the barriers or bear the costs (direct and indirect). Indirect costs include land becoming unproductive for six or seven years while the avocado trees mature, as well as the direct costs of purchasing the saplings. An example of a barrier is that sapling nurseries and chick purchasing locations were located too far away. Another is that vaccinations for hybrid chickens are unavailable in their community. These are also manifestations of inequality based on location.

Households vary significantly in their ability to sell to markets, due to issues of surplus and access. In the community with irrigation almost every household did so, but far fewer did in Adeaaro and Adea Ofa. This finding aligns with their respective food security situations. While it may appear that land size is the key factor of determining food security in Buge, this must be contextualized with the reasons why Buge has been able to retain land, while Adeaaro has experienced greater land fragmentation. As Adea Ofa demonstrates, larger land alone does not necessarily result in greater food security, as

Adeaaro has, on average, half the size of plots, but stronger food security. A recurrent theme emerging from this research is the complexity that exists within rural settings and the diverse interactions, opportunities and barriers that cannot be analyzed in isolation.

Livelihood diversification also differs, with some choices being opportunistic and a sign of household strength, while others are due to vulnerability and highlight adoption of a livelihood due to a lack of other viable choices. Buge is literally divided by a road, one side of which does not have access to irrigation. Upon reflecting about “the other side of the road” participants in the focus group discussions agreed that “those without irrigation are food insecure” and their “situation is very bad.” On their own side of the community, where irrigation is available, only those with limited land or living in specific, challenging circumstances face chronic food insecurity. These circumstances, however, affect livelihoods in a diversity of ways. Off-farm and non-farm activities are forms of livelihood diversifications, and exemplify the diverse meaning that can be drawn from their practice.

Table 6.18 Off-farm and Non-farm Activities (% of Community Engaged)

Community	Firewood	Grass	Milk	Butter	Handicrafts
Adeaaro	0	3	8	11	25
Adea Ofa	20	19	7	25	5
Buge	10	3	11	18	2

Collecting firewood and grass are livelihood activities, community members explain, that are done as a last resort, and can be understood as an expression of vulnerability. These tasks are labor intensive, and a day or two days work may result in only ten ETB (US\$ 0.45). A greater percentage engaging in these livelihood diversifications, therefore, ought not to be viewed as an expression of strength, but of greater food insecurity and vulnerability. Additionally, these endeavors could be considered maladaptive because the activity is insufficient to meet basic needs and can foster conflict over resource use in communal areas. Handicrafts, on the other hand, particularly wood products like

bedframes and chairs, are high value activities that are more common in Adeaaro due to its proximity to the town. Livelihood diversifications may be best understood as aligning with the community-level stages of food security segments of society: the poorest and most food insecure engage in activities such as collecting firewood and grass. In contrast, those with dairy cows, who are amongst the more food secure, enhance their income with the sale of butter and milk. As a result, the inequalities within communities increase, as the most food insecure have their assets eroded while the food secure gain in new options and assets as their investments increase their incomes. The returns on investment (be that labor or financial) are much greater than those of the most food insecure. This is a micro example of the $r > g$ equation (rate of return on capital is greater than the rate of economic growth over the long term) developed by Piketty (2014).

The focus group discussions, and to an extent the community-level data, reinforced the theory that certain types of off-farm and non-farm activities are expressions of opportunity while others are due to vulnerability. At the community level, shown in Table 6.18, geographical opportunities are evident. Residents in Adeaaro engaged in more handicraft work as the market and town were easily accessible, whereas Adea Ofa focused more on selling milk and butter as they have larger average land sizes are more livestock holdings. It was suggested that firewood and grass collection were expressions of vulnerability and done only out of necessity; higher levels found for both in Adea Ofa, where food insecurity is highest, suggest this might be the case. However, disaggregated data, by food security status, rather than averages at the community level, are better able to determine if this is the case.

Table 6.19 Off-farm and Non-farm Activities (% by food shortage status)*

Community	Firewood	Grass	Milk	Butter	Handicrafts
Secure	1	2	2	5	2
Insecure	5	6	4	5	5

*As outlined in the Stages of Food Security assessment above.

Table 6.19 shows the disaggregated data by food security status. As with the community level data, very low percentages of community members are engaged in these activities. However, disaggregation in this form allows the testing of the idea that certain activities are associated with food security status. While the findings do not dispute the proposition, they do not strongly support it either. Rather, the data suggests that few households engage in these activities, and few generalizations can be made about these choices based on food security status; if anything the trends appear most influenced by competitive advantages and opportunities.

At the community-level, one of the livelihood diversification enablers is irrigation, which enables new crops to be grown, additional harvests to be reaped, and more yields to be sold in the market. What is not shown in the statistics in Table 6.20, but emerged in focus group discussions, are the costs related to livelihood type choices, such as the form of plowing utilized. For the many households that do not have the two oxen that are required for plowing, they must borrow or rent these animals. Additionally, there is an inverse relationship between land size and the ability to plow by hand, as the labor-intensive approach is not viable on larger plots. Similarly, when oxen are required, but need to be borrowed, the timing of plowing is less ideal, as households with two or more oxen are able to prioritize the plowing of their own fields, forcing those without sufficient oxen to wait until they are available. The ‘unaccounted’ costs faced by the poor, therefore, are decreased yields due to less than ideal plowing and planting periods. This is an example of a non-formal and indirect ‘poverty penalty,’ which Mendoza describes as “higher costs shouldered by the poor, when compared to the non-poor” (Mendoza, 2008: 1). Typically the poverty penalty concept is applied to service provision, such as access to credit, healthcare, water or electricity. However, there are also indirect poverty penalties faced by the poor in non-market settings such as the lower yields and fewer livelihood options due to insufficient assets.

Table 6.20 Livelihoods by Community

Community	Average land size (<i>temut</i>)	% sell to market	% hand plow
Adeaaro	0.8	58	64
Adea Ofa	1.5	55	26
Buge	2.2	91	12

Table 6.21 Livelihoods by Food Shortage Status

Community	Average land size (<i>temut</i>)	% sell to market	% hand plow
Secure	1.9	76	17
Insecure	1.3	56	42

*As outlined in the Stages of Food Security assessment above.

The community-level data (Table 6.20) shows that Buge stands out from the other two communities, particularly in its levels of market engagement and use of cattle for plowing (instead of labor intensive hand plowing). The disaggregated data by food security status (Table 6.21) reinforces a consistent theme, that vulnerability to food insecurity increases as land holdings decrease, particularly when the holdings drop below what is sufficient to provide basic needs. The households experiencing food shortages far more often hand plow their fields and are less likely to sell to the market, compared to those households that are relatively food secure. The impact of irrigation is evident in the community-level data, and within the cross-community disaggregation it is clear that food insecure households face multiple, compounding challenges that entrench their food insecure situation. All of these factors, independently and compounded, increase rural inequality. Households that face greater vulnerabilities receive fewer goods and less services, which entrenches their food insecure situation. Whereas, food secure households are able to increase their yields by taking advantage of services and opportunities.

The impact of irrigation on increased yields, on multiple harvests and diversified high-value crops extends beyond these impacts that are directly related to agriculture, nutrition and income. It has also contributed to changed social relations, including an expansion and diversification of social capital. Since so many more families sell their yields on the market, they have formed numerous groups for collective selling. The networks and income enabled new businesses to emerge, such as investing in hybrid chickens for egg sale and working on high-value handicrafts, such as woodwork items. There are also indications that the irrigation system, as it was implemented in partnership with the government, has changed citizen-government relations. For example, while many of Buge's residents could afford to purchase water from a nearby town, at five ETB per fifty liters, they viewed their water situation as particularly poor. Residents (almost always women) typically walk an hour to purchase the water, which is hand transported in a locally-made cart. "We are raising the issue with the district government" they explained. Even if no response has materialized, the other two communities do not actively engage with their governments in seeking improved provision of goods and services. Although the linkages are indirect, it appears that the new forms of social capital are enabling new confidence of citizen-government interactions.

Contrast this with the other two communities, wherein direct citizen engagement on issues such as water access are absent or at best indirect. In one interesting instance, community members in Adea Ofa used my presence to speak indirectly to the government: as one of the focus group discussions were about to conclude several government personnel arrived, and the concluding remarks offered included: "We can improve our life if we have access to roads, water and electricity," which are all government provided services. While irrigation does not alone explain changes to citizen-government relationships, there are, nonetheless, indications that it has contributed to changes well beyond agricultural output, and that extreme vulnerability restricts opportunities to interact directly, often due to dependency upon that authority.

In the economic realm, it appears that there is a diversity of options available to smallholder farmers, both formal and informal, to access credit. There is also, at least in theory, an environment wherein multiple potential borrowing sources exist, resulting in

competition and lower interest rates (see Table 6.22 for the diversity of sources). The lived experience, however, is that of high interest annual rates and few options for fair repayment terms.

Table 6.22 Sources of Debt, % of Households by Community

Source	Interest rate	Adeaaro (%)	Adea Ofa (%)	Buge (%)	Total (%)
Cooperative	15	29	27	27	27
Local Lender	3-50	10	19	11	14
Microfinance	15	34	38	31	34
Other	2-15	23	9	25	18
Trader	2-8	5	7	5	6

In fact, governmental programs and services seeking to improve access to credit can have negative long-term impacts, such as in the implementation of a program where fertilizer is offered on credit: vulnerable households are pressured to take the input packages on credit but are unable to repay, resulting in debt, followed by the sale of assets to make payments (Handino, 2014). In years of poor or failed harvests, the debts that could not be repaid devastated families. For some the result was the loss of their land (government appropriation). In addition to increasing vulnerability, this program also increased distrust between farmers and government extension workers.

Borrowing is a regular practice throughout Wolaita. Community members in Buge explained that “If you include credit for fertilizer and seed, almost everyone had debt” and that “no one is free from debt.” The second household survey conducted in this research, specifically examining debt, found that every single household had borrowed money at least once within the most recent five years, while the average number of years when loans were taken was 2.75 during that period. The survey results indicate that, at least in these communities, the majority of loans are taken on due an inability to meet

basic needs (see Table 6.23), which was also the primary explanation given in focus group discussions. As in other contexts (e.g. Watts, 1983), distress and vulnerability borrowing occurs seasonally. One indication of vulnerability borrowing is a strong positive relationship ($r=0.65$) between a higher number of loans taken within the five year period and a higher number of instances when households were unable to repay the loan. This indicates that borrowing is not a process of securing upfront capital to obtain higher returns (due to agricultural cycles), but that those more frequently taking loans are households more likely to be unable to repay them. An additional indication of this is that there was only a weak relationship ($r=0.29$) between the amount borrowed and the inability to repay, demonstrating that borrowing is more related to frequency than it is to amounts (Cochrane and Thornton, 2017). In other words, larger loans for more expensive items, such as motorcycles or ceremonies, are less likely to result in indebtedness than those small loans needed to purchase basic needs. A further indication of borrowing due to necessity is that in the most food insecure communities of Adeaaro and Adea Ofa, it was more common to borrow from multiple sources in a single year.

Table 6.23 Reasons for Borrowing

Reason	Adeaaro (%)	Adea Ofa (%)	Buge (%)	Total (%)
Agricultural inputs	27	30	23	27
Basic needs	39	32	36	35
Healthcare costs	23	22	36	25
Funeral costs	2	4	0	3
Marriage costs	2	2	2	2
Education costs	6	6	3	6
Other	0	5	0	2

In the survey on borrowing and debt, exchanges between family and friends did not appear to be significant. However, qualitative data suggests this is likely due to the

framing of borrowing and debt as a formal arrangement for which interest rates are applied, whereas exchanges between family and friends are considered to be a duty and given without interest. The one case in which family was mentioned as a loan source was one for which interest was charged. Some research suggests that exchanges of this nature between family and friends are infrequent (Yilma et al, 2014). However, these results may also have been subject to the same bias in framing. Qualitative data indicates non-financial exchanges, such as food gifts, are also common, and were frequently practiced in the areas of study.

Based on the prevalence of necessity borrowing, it might be assumed that the community with greater food security would have a lower frequency of loaning. However, the household survey indicated that the differences between the communities were minor (average number of years with loans of the last five: Adeaaro 2.8, Adea Ofa 2.9 and Buge 2.5). This highlights the fact that certain agricultural systems operate beyond the capacity of smallholder farmers to practically manage without credit but that not all are equally able to repay. Examples of this include the need to purchase improved seed, fertilizer and pesticide on an annual basis. Research from other countries suggests that in some instances, borrowing increases along with assets (Nuansoi, 2013). In other studies, more nuanced examinations of debt deconstruct a myriad of practices and relationships as expressions of social differentiation along geospatial, social, political and economic lines (Gray and Dowd-Urbe, 2013; Guerin et al, 2013). Further details on borrowing, debt and indebtedness in Wolaita are presented in Cochrane and Thornton (2017). A key finding was that financial diversification can be detrimental and result in (semi-) permanent indebtedness.

Although not a primary cause of regular borrowing or debt, significant cultural events can result in a “critical juncture” moment for households, which disrupts the expected annual progression of events, and results in significant change (Acemoglu and Robinson, 2012: 101). For example, there are socio-cultural expectations wherein significant events are to be marked with large celebrations, such as marriages, funerals, graduations, and to a lesser extent circumcisions (male and female) and annual religious holidays. This has been found in numerous countries and cultures (Bloch, Rao and Desai, 2004; Case et al, 2013;

Krishna, 2010; Thornton, Kerslake and Binns, 2010). The large loans taken to pay for these events may take five years to repay, and sometimes result in lifelong indebtedness. These loans are almost always taken informally (most commonly a local lender), and range from 7,000 to 60,000 ETB (USD 300 – 2,700) often having ten to fifteen percent interest rates. Since these loans are not formalized, the penalties for non-payment tend to be the taking of assets or the informal taking of land (since transfers and sales are prohibited by law). One of the three communities, Adea Ofa, enacted a bylaw against large celebrations in 2011, including a punishment of imprisonment, as a means to reduce practices of this nature.

Another critical juncture, and cause of borrowing and debt, is medical emergencies. Residents of Adea Ofa face the most difficult situation since their community does not have cell phone coverage, and therefore cannot call for help. Residents must rely on the few within the community who have donkey-drawn carts or motorcycles, who charge exorbitant prices for transportation to the hospital. Damot Gale does have a public ambulance that serves the district, and residents were aware of it, but it was non-functional and thus not an option even if cell phone reception was extended. Upon reaching the medical facility, there are costs associated with staying (e.g. daily food) and for purchasing medication. These medical emergencies, while infrequent, can cause lifelong indebtedness due to associated costs such as transportation.

In contrast to borrowing, families proactively seek to diversify their income sources by investing in the education of their children. As Cochrane and Gecho (2016) point out, this is not all children at all times, but strategic investments enabling some to attend school, while the overall ability to send all children to school remains low. While the expectations are not formal, there is an understanding that children who migrate will help their family to the best of their ability. To this end, remittance has gained significant attention in the literature, notably in the recognition that global remittance is three times larger than global aid flows (Provost, 2013) and offers opportunities for poverty reduction (Beyene, 2014; Eversole and Johnson, 2014). Domestic remittances in Adea Ofa are relatively common, being sent to almost a third of all households (Table 6.24). Community analyses of the household survey results within focus group discussions in Adea Ofa confirm the

relatively high percentage of domestic remittances, but suggest that the sums involved are “not a lot.” It tends to consist of small sums of money that have been saved by children working as unskilled workers sent around important religious holidays. These sums support the costs associated with religious festivals and festive meals.

Table 6.24 Percent of Community Members Receiving Remittances

Community	Domestic sources	International sources
Adeaaro	7	1
Adea Ofa	29	4
Buge	14	7

The impact of domestic remittances, based upon qualitative data, is relatively low. For example, unskilled migrants may send 200 or 300 ETB (US\$ 9 -18) to support the celebration of a religious holiday. Despite enthusiasm in the development studies literature regarding international remittances, the impact in Wolaita, to date, is negligible. The instances when a household did receive international remittances were well known, due to their rarity. This included a priest who was regularly supported by family in Italy, for example. While vast sums of money are flowing as remittances, this research indicates that much more needs to be understood about where those flows have impact within receiving countries. This findings suggest that it is not the most vulnerable households in rural Ethiopia receiving shares of the large international remittance flows. It is more likely the case that highly educated, urban migrants who relocate internationally, are sending remittances to relatively well-off urban residents. For example, in order to access international remittances, recipients are commonly required to have government issued identification and a bank account. They would also need access to communication technology and be within distance of a bank branch, which excludes most rural residents in Wolaita. For the majority in rural communities such as these, even the basic requirements pose daunting barriers.

Population growth & land size

In the focus group discussions land fragmentation consistently arose as a grave concern, amongst all ages and stages of food security. Evidence indicates that as much as smallholder farmers intensify their agricultural practices and supplement their crops with inputs, land constraints caused by fragmentation are a primary cause of rural poverty and food insecurity (Headey, Dereje and Taffesse, 2014). The land size per capita in Wolaita, as outlined in Chapter 2, is amongst the smallest in Ethiopia, and fragmentation due to inheritance continues to place immense pressure on household food security. Even with yield per hectare increases and the introduction of greater yielding varieties, the amount of harvest per household is declining due to decreasing average land size.

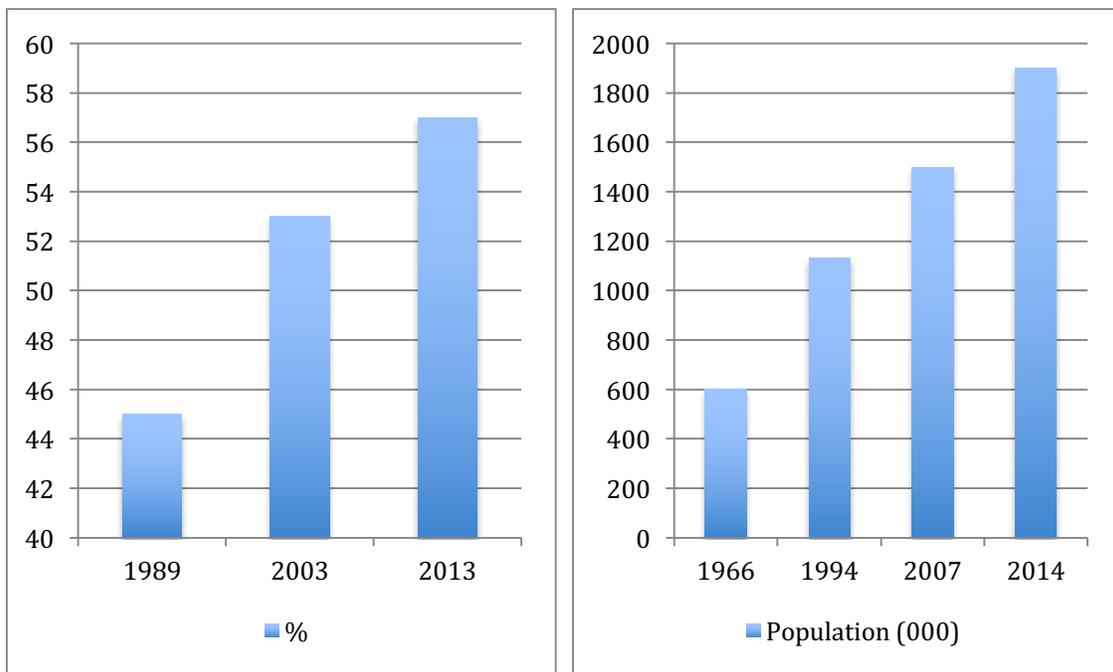


Figure 6.12 Percentage of Households Farming Less than 0.5 ha & Population Growth for Wolaita

Source: Rahmato 1992, 2007; CSA 2013; Damot Gale Agricultural Office

These two trends of population growth and land fragmentation are not new concerns. Local government officials recognized them as key challenges for Wolaita in the 1960s (Rahmato, 2007). In the decades since, the number of households cultivating ‘micro plots’, which Rahmato argues are insufficient to meet needs and “collapse under even minimum pressure” (2007: 10), has significantly increased (see Figure 6.10). As the population continues to grow, and because off-farm options are limited, it is expected that land fragmentation will continue, resulting in more households crossing the <0.5 ha threshold throughout Wolaita. In Damot Gale, where the three study communities are located, the vast majority of households have crossed this threshold with only a small minority still holding land that has the potential to provide sufficiently for their needs.

Based on an aggregate correlation of all surveyed households in the three communities, larger land sizes are correlated with greater numbers of household members ($r=0.42$). The household survey found that there were 129 households having 0.5 *temut* or less whose average total household size was 5.4 whereas the 124 households have 1.5 *temut* or more had an average household size of 7.4. As explained above, the ratio of working to dependant household members does not differ at the community level or based upon food security status. One explanation of the difference is that in Wolaita in the most vulnerable and food insecure households more members are forced to migrate, reducing their household size.

Table 6.25 Household Land Size

Community	Average land size (ha)	% Less than 0.5 ha
Adeaaro	0.2	92
Adea Ofa	0.4	70
Buge	0.6	78

The data on land holdings within the communities provides insight into how food insecurity data differs from that of traditional poverty assessments. Land size would

typically be taken as a primary measure of wealth, which it is, but it does not necessarily correlate with the level of food insecurity. The community with the highest level of food security (Buge), is not the one in which the greatest percentage of households have more than 0.5 ha of land, rather it is the most food insecure community that exhibits this characteristic (Adea Ofa) that has the greatest number of households holding more than 0.5 ha of land. Furthermore, on the individual level, these correlations are less direct than might be assumed. For example, in reviewing household surveys my own assumptions identified a household for verification because it held a large plot of land, but the survey indicated it was chronically food insecure. In this instance, the death of the male household head and the lack of available labor resulted in share-cropping, which offered only a portion of yield outputs. In contrast, another household with almost no land was food secure, and while verifying the survey data I found the household was supported by international remittances. Although the extent of these unexpected findings was greater than the typical experience, these were not anomalies. In fact, households such as these provide insight into the realities of rural dynamics that are typically lost in averages. While land size is an important factor, these findings indicate that broader assessments need to take into account the complex interconnections and dynamics, as shown throughout this chapter.

The relationship between population and land size, given the role of land fragmentation, is important. Yet, this study does not place a strong emphasis on it. The primary reason for that is because population discourses tend to individualize risk, problematize individual choices, and often result in recommendations that restrict agency (e.g. population control initiatives). I believe that all people should have access to family planning information and options, and this is something that Ethiopia needs to make greater progress on. Within that conversation, however, we cannot allow the responsibility of the state to be neglected. Rather than focus on the challenges of population growth and land fragmentation, I have opted to focus on how the programs and services offered to smallholder farmers are not meeting their needs. In addition, I opt to emphasize how the state is not protecting basic rights. Due to this positioning, I have underemphasized the role of population growth in order to avoid individualizing risk, and instead focus upon the responsibilities of the state.

Change over time

Krishna's Stages of Progress methodology emphasizes status change over time. This methodology was designed with similar expectations. Reflecting upon Krishna's (2010) findings suggests that he may have over-emphasized change, as it only applies to a minority of households. While Krishna's work shed light on dynamics, it failed to focus on the relative stability of the majority. As would be expected, households experience some change – life and livelihoods are not static. In agreement with Krishna, the findings of this research indicate that the majority experience minor shifts while a minority experience significant change (positive or negative). Krishna focused on people falling into and overcoming poverty, significant status changes. The following proceeds with the assumption that minor changes equate with relative stability and that significant change (much worse or much better food security status) equates with significant change. Based upon this, the findings explored in this section, and those of Krishna (2010), highlight how change can occur, but also demonstrate the stability of the majority.

Interviews about historical change for this research indicated the extent and processes of significant change. For some, investments resulted in significant positive change, such as investing in a donkey drawn cart that provided regular income, or investing in fruit trees. Other positive changes included the fruits of long-term investments in education resulting in a household member securing local, skilled employment as teachers and health professionals. In Buge, the significant improvements centered on the newly gained access to irrigation infrastructure. Significant negative changes were quite similar to the findings of Krishna (2010), including family illness, deaths and burdensome debt (including land taken for debt repayment to the governmental microfinance institute). This includes, the relatively infrequent, but devastating impact of social expectations, such as hosting expensive funerals. Social expectations such as these led one widowed mother to sell half of her land in order to hold an elaborate event for the funeral of her husband. Other factors of change were specific to Ethiopia, such as the government confiscating land. This occurs legally, as the government owns all the land, and land use rights have only recently begun to be granted. The government can, and does, seize land for space to build institutions, such as schools, Farmer Training Centers and government buildings.

Land loss due to government take-overs were the cause of four of twenty (20%) instances of significant, negative food security change, identified in the historical interviews.

The household survey asked about two historical points in time, and about comparative assessments of the present situation. This data suggests, as Krishna (2010) found, that significant change took place for a minority, and that most experience moderate or minor changes. However, unlike Krishna, this data adds a geospatial analysis, which shows how different these experiences have been depending upon where the respective household is located (see Table 6.26).

Table 6.26 Relative Food Security Change: Compared to 10 Years Previous (%)

Community	Much worse	Moderately worse	Same	Moderately better	Much better
Adeaaro	9	74	6	8	3
Adea Ofa	36	41	7	4	12
Buge	4	53	7	13	23
Average*	16	56	7	8	13

*Based on the average of total figures per community, not the household survey averages, because the number of surveys differed by community and this assessment makes all communities equal.

The ten and twenty five year data (Table 6.26 and 6.27) must be taken as a trend because the results are clouded by politics and subjective interpretations of what component of change is focused upon. Despite recognizing this challenge, and an explicit effort made to address it, the time comparison questions were often answered in the context of the government ruling in the time period asked about. It is unclear how Krishna, in the Stages of Progress methodology, dealt with the challenges of many potential biases related

to answers of this question. It appears that these challenges may be undervalued, or it may be that the Ethiopian context is particularly sensitive to politicization.

The comparison to ten years ago is useful because it is the same government that currently governs. Those results indicates that for a majority their situation is worse than it was a decade past, in all three communities. The community that stands out is Adea Ofa, where the current situation is much worse for more than a third of households. Focus group discussions identified this trend as largely driven by land fragmentation, population growth and a lack of access to services. However, as detailed earlier in this chapter, land holdings are largest in Adea Ofa and population growth was relatively similar throughout the three communities. Thus, it appears that the greatest impacts are related to the community's rural location that reduces market access for sale and purchase, increases costs of healthcare (particularly emergency care), and reduces access to supportive services (e.g. governmental activity and NGOs impacted by the tarmac bias; Chambers, 1983) as well as alternative means to overcome challenges (e.g. day labor in the town, or the roadside selling goods).

On the other end of the spectrum, it was Buge where significant improvements occurred, which is primarily a result of the introduction of irrigation. The direct impacts included more stable crop yields, a reduction of vulnerability and months of food shortages, and increased household income. Other positive changes included the introduction of new crops, and therefore new market sale options; a greater ability to send all children to school, and for longer, enabling skilled migration instead of distress migration, and greater investments aimed at increasing income and returns, such as new fruit trees, means of transportation and livestock.

The trends for the twenty five year question mirrored the ten year results (Table 6.27), but were more pronounced in the changes that were evident. A quarter of a century in the past the Derg government had redistributed land to the landless, changing land ownership quite radically, however in the focus group discussions it was clear that even at that time people were not satisfied with the amount of land that was given, believing it to be insufficient. More important, as many community members emphasized, was the fact that war during the period of governmental transition had devastated many families,

directly and indirectly (e.g. conscription causing loss of labor and deaths). “Before we had no freedom” they recall in Adea Ofa. “There was war and support for the war was a great burden.” For many community members, it was the impact of the war that was most vividly remembered as the main cause of food insecurity in the late 1980s and early 1990s.

Table 6.27 Relative Food Security Change: Compared to 25 Years Previous (%)

Community	Much worse	Moderately worse	Same	Moderately better	Much better
Adeaaro	10	74	7	6	3
Adea Ofa	45	30	3	9	13
Buge	19	40	2	9	29
Average*	25	48	4	8	15

*Based on the average of total figures per community, not the household survey averages, because the number of surveys differed by community and this assessment makes all communities equal.

In analyzing these results with community members, it was clear that despite our best efforts, this question was politicized. The twenty five year question was strongly associated with “Derg time” and thus the answers reflected underlying political positioning. Understanding these answers as political helps to contextualize the relatively high numbers indicating significant change over time. Krishna’s work (2004, 2005, 2010) suggests that such change, either positive or negative, tended to be on the order of ten percent. It is possible that change could be more dramatic in Wolaita. However, a degree of caution ought to be taken due to the political nature of this finding.

In addition to politics, answers to this question depended upon how individuals thought about the past. For example, some who viewed the past positively recalled more stable and regular rainfall, lower costs of goods and more communal land available for livestock grazing. In contrast, those with more negative views of the past included reflected on weak governmental support, insufficient infrastructure (no roads or irrigation), and fewer opportunities to send children to school. Another bias concerns households reporting negative change as a means to secure additional support. This form of bias cannot be discounted, and likely influenced answers as well. As with indicators on generalized input use, this question on change misses the diverse ways in which positive change has occurred (e.g. introduction of safety net, health posts and school) and how negative change has occurred (e.g. land fragmentation, climate change, population growth). The experiences of positive and negative changes are diverse, and the question inappropriately requires respondents to provide one generalized response. Due to these biases and challenges, I have not placed a great emphasis on the significant changes, and discuss them as trends rather than as authoritative representations of shifts. As with Krishna (2010), I have focused upon the key drivers of individual change. As explored in this and the next chapter, the case studies which were identified for individual interviews in order to assess historical change more fully provided significant insight into the complexities and dynamics of vulnerability to food insecurity and of adoption of goods and services.

6.3 FINAL REMARKS ON VULNERABILITY TO FOOD INSECURITY

In the analysis of the co-created household surveys it was identified that some traits were common to all three communities, such as average household size and the ratio of working age individuals to dependent members. However, the Stages of Food Security assessment outlined how different the communities were in their proxy food security measures. Of the main reasons for differences, the varied options and opportunities as well as unique strengths based on geographic location were crucial. Across communities, the data shows how irrigation played a significant, positive role in strengthening food

security. The intra-community differences were an important finding, particularly for certain factors where the intra-community inequalities were just as great as the inter-community ones. Causes of intra-community divergence were often micro-level expressions of the macro-level trends. The findings showed how vulnerability to food insecurity is influenced by both micro and macro factors, and by the unique ways in which these are manifested and expressed by different measures.

Of the greatest strengths emerging from the Stages of Food Security methodology is the depth of qualitative insight. The process resulted in a reformulation of questions and metrics, and their co-analysis facilitated the emergence of highly contextualized information about the socio-cultural, economic, political, historical and gendered relationships in society. In addition to the results presented in this chapter, additional areas of research were highlighted throughout the process, each of which have enriched the findings presented in this dissertation, from gendered youth migration experiences to the sources and frequency of borrowing and debt.

This chapter set out to assess vulnerability to food insecurity using participatory, co-produced approaches to highlight key factors for assessment. The results from the quantitative surveys and the qualitative data from the focus group discussions, demonstrated that food security cannot be understood with isolated metrics but requires analyses of interconnected statuses existing in dynamic and complex systems. The explorations showed that ‘common knowledge,’ such as the importance of diversification, is not always a sign of strength, but can be an expression of vulnerability and maladaptive. With these deconstructions, the following chapter will seek to explain why, in this context of chronic food insecurity and significant vulnerabilities thereto, the adoption of government support programs and services is low.

CHAPTER 7. ADOPTION OF EXTENSION SERVICES AND PROGRAMS

The previous chapter explored the causes of vulnerability to food insecurity. This chapter analyzes the types of programs and services offered to smallholder households. In particular, it seeks to better understand why, when food insecurity is high, the literature indicates that levels of adoption are low, and that up to a third of all households discontinue their participation in these programs and services before completion (Bonger, Ayele and Kuma, 2004; EEA/EEPRI, 2006; Gebrehiwot and van der Veen, 2014; Spielman, Mekonnen and Alemu, 2012; Taffesse, Dorosh and Gemessa, 2012). Before assessing what insights the results of this research present, this chapter briefly outlines the key programs and services offered to smallholder farmers.

7.1 OVERVIEW OF SERVICES AND PROGRAMS

The programs and services described below are, for the most part, federal programs offered throughout most of the country, including: agricultural extension supports and services via Farmer Training Centers, land certification, the social safety net, foreign direct investment in agriculture and the initiatives related to the Ethiopian Commodity Exchange. For some findings the data from Wolaita Zone ought not be generalized to other regional states, nor generalized to the SNNPR due to the different socio-cultural, political and historical contexts concerned, or because the programs are implemented in unique ways or have unique impacts in different regions and agroecological settings. However, as Escobar (1994: 109) explains, from “the perspective of institutional ethnography, a local situation is less a case study than an entry point to the study of

institutional and discursive forces and how these are related to larger socioeconomic processes.” From this perspective, this study provides direction for researchers seeking to better understand the implementation and impact of programs and services offered to smallholder farmers in other regional states, and even other countries, as it highlights key lessons that will assist in the formulation of new research questions, directions and approaches. It also outlines the role of institutions and the political and power-based drivers of activity. Throughout this chapter I return to these five areas and reflect on them in light of the research results.

As this study has shown, rural lives and livelihoods cannot be understood by looking simply at agricultural information to discern the decisions taken regarding agricultural practices. Rather, the broader, complex environment in which agriculture takes place must also be understood. Chapter 2 contextualized the expansion of healthcare services and educational options, which are two of the biggest changes that have occurred in the communities studied. In other parts of Ethiopia, resettlement and relocation have been, and continue to be, major causes of changes (Berry and Ofcansky, 2004; Cohen and Isaksson, 1987; de Waal, 1991; Rahmato, Pankhurst and van Uffelen, 2013; Tareke, 2009; Woldmeskel, 1989). Some relocation has occurred within Wolaita, but to a minimal extent in the research communities, and this is therefore not a focus in this study. Rather, migration from rural Wolaita to other rural or urban environments outside of formal government programs (Cochrane and Vercillo, 2017), as was discussed in the preceding chapter. In yet other parts of Ethiopia the creation of large-scale hydroelectric dams has significantly altered livelihoods, and caused displacement (Derbew, 2013; Hurd, 2013; Oakland Institute, 2013), including in SNNPR, but this is not the case within the study communities. It is well worth reemphasizing the importance of viewing lives and livelihoods as existing in complex, dynamic systems wherein these programs and services do not exist in isolation but interact with each other in direct and indirect ways.

Agricultural support services have been offered for the last eighty five years in Ethiopia, a recognition of the primary role that smallholder agriculture plays in the national economy and the fact that it employs a majority of the nation's people (Belay, 2003). In 1931 the government established the first agriculturally-focused school and in 1943 limited agricultural extension services were provided to farmers by the Ministry of Agriculture, while the foundations of the modern Ethiopian agricultural extension work were laid in the 1950s (Belay, 2003). In partnership with the United States, the Imperial government established a university with a mandate to develop a national agricultural extension program. According to Belay (2003), in 1963 the responsibility of the extension program was taken over by the Ministry of Agriculture, at which time there were seventy seven extension workers employed throughout the country. However, during the Imperial period (lasting until 1974), the emphasis, investment and support of agriculture was primarily geared toward large-scale commercial farm operations (Belay, 2003).

The Agricultural Development Unit in Wolaita (then Welamo) was one of the first of such units to be established, in 1971, with support from the World Bank (Belay, 2003; Berhanu and Poulton, 2014; Chinigo, 2015). As was outlined in Chapter 2, a number of services that continue to be offered by extension workers were first offered during the 1960s, including: input use, training, field demonstrations, marketing and credit services, promotion of agricultural technologies and support to community-level organizations (Berhanu and Poulton, 2014). Although the coverage of these services was low, and largely limited to roadside communities, there exist seven decades of institutional knowledge and experience about why, how and when extension services are (in)effective. For example, as Belay (2003: 56) notes, the government “realized that the comprehensive package projects [in the 1960s and 1970s] failed to serve the very people for whom they were destined”, and that instead the main beneficiaries were large landholders and commercial operations. The ability to support rural residents was limited due to the nature of land tenure at that time, with large landholders and tenants similar to a feudal model. Land inequality was one of the first reforms implemented by the Derg government, which overthrew the Imperial government in 1974 (discussed in more detail below).

Due to the instability that preceded and followed the coup d'état, agricultural extension work was limited until 1981, when the minimal extension packages introduced by the Imperial government were re-started and expanded to cover more districts, from 280 to 440, out of a total of 580 (Belay, 2003). One of the organizational shifts instituted by the Derg was the division of activities by component (water, crops, livestock), resulting in duplication of limited staff responsibilities and misuse of minimal resources. Extension staff were also tasked with other governmental activities, such as collecting taxes (Belay, 2003). Although the government had initially expanded the program coverage, the limitations of staff and resources resulted in it opting to focus on “high potential areas so as to raise their production and productivity by channeling the limited resources and extension services toward them” (Belay, 2003: 60). The number of districts covered by extension activities was reduced to 148, thereby disproportionately offering services to those in better agroecological settings and revoking them from those in more precarious and challenging situations. Furthermore, extension activities continued to focus on large, commercial farms, even after the land reform took place. Even with this focus, during the 1981-1985 period, packages continued to be ineffective due to “poor research-extension linkage” (Belay, 2003: 59) and their “inflexible and top-down nature” (Belay, 2003: 61).

As these programs began to mature and evolve, another coup d'état disrupted activities, resulting in the instating of the current government in 1991. Policy and program experimentation occurred throughout the 1990s, with the integration of participatory approaches and demonstration plots, and the promotion of improved seed varieties and technology packages (Belay, 2003). The focus of these activities continued to be in areas of high potential for agricultural production, with a slow expansion over time to include more districts throughout the country. In 1995 there were 2,500 agricultural extension workers (Berhanu, 2012), which rose to more than 14,000 in 2001 (Belay, 2003) and by 2010 there were 45,000, with an aim to reach 66,000 (Berhanu, 2012; GFRAS, 2012). These community-based staff support farmers by providing them with knowledge, training and connections to other governmental services. To train this workforce, the government established twenty five Agricultural Training and Vocational Educational and Training colleges, which have graduated tens of thousands of agricultural extension workers. The training offered by extension workers to farmers varies by region, along

with crops, soils, rainfall and other agroecological factors, but tends to focus on improving crop production, water utilization and management, and supporting community organizations, such as cooperatives (Berhanu, 2012). Farmer Training Centers, which started in 2004, were developed throughout the country as a means to support the agricultural extension workers. The Centers are places where demonstrations and training are held. As of 2012, several thousand of these centers were in operation, with a total of 15,000 planned (Berhanu, 2012).

Berhanu and Poulton (2014: S197) argue that agricultural extension operates with “twin imperatives” of economic growth and political control. As outlined in this brief history of Ethiopian agricultural extension, the integration of non-agricultural, political objectives into the activities of this program are a consistent feature of it, such as extension workers collecting taxes (Belay, 2003). This dual purpose may also reflect the governmental re-naming of staff from agricultural extension workers to ‘development agents.’ This research largely uses ‘agricultural extension worker’ to ensure clarity, as the new title does not make it immediately clear what such a position entails. Berhanu (2012) suggests one of the primary self-serving political reasons for agricultural extension programming is that the overthrow of both the Imperial and Derg governments were rooted in smallholder support, and were linked to situations of severe rural food insecurity. That, however, is not all Berhanu and Poulton (2014) argue is occurring. They note that as the program has expanded, so too has rural political control. Rural programs and services, they point out, are monopolized by the government (including provision of seed, fertilizer and credit) and therefore not politically neutral, the staffing of the posts prioritize party loyalty, and implementation is used to reward party supporters. Political patronage in rural service implementation has been pointed out by Cochrane and Tamiru (2016), de Waal (2015), Abegaz (2011), Ketsela (2006) and Gudina (2003), and thus not an unknown or unfounded claim to make. Additionally, Berhanu and Poulton (2014) point out that extension workers regularly engage in political activities, including campaigning for the ruling party.

Tenure in Ethiopia is often divided into two categories: pre-1975 and post-1975. In the dividing year the Derg government began a land reform program, which included the nationalization of all rural land and that nullified existing tenure agreements (Kebede, 2002). The radical change in tenure introduced by the Derg sought to end a form of property ownership that, in most parts of Ethiopia, benefited a minority. The Derg sought to redistribute land to the majority through local community organizations, which were also established by the Derg (Rahmato, 2004). The land reforms instituted by the Derg are, to a large extent, the basis of the present land tenure system under the current EPRDF government.

During the pre-1975 period, land tenure was not uniform throughout the country. In the northern parts of Ethiopia, where settled agriculture had been practiced for millennia, customary land systems were dominant. In these northern areas, members of a particular lineage owned large areas of land, a claim that could be made through either matrilineal or patrilineal lines and a system wherein both males and females were eligible to inherit land (Kebede, 2002). In southern and eastern Ethiopia (which was not incorporated fully into the state until the nineteenth century), multiple tenure systems existed. The empires centered in eastern Ethiopia, such as Harar, and southern Ethiopia, such as Jimma, were oriented toward the laws of Islam and influenced by its jurisprudence relating to property rights (Sait and Lim, 2006). The pastoral Somali and Afar peoples, also influenced by Islamic law, practiced customary systems wherein groups collectively shared areas of land (Gebre Mariam, 1991; Helland, 2006; Hundie and Padmanabhan, 2008; Roth, 1988). In other parts of the country, such as in Kembatta, a king owned all the land and distributed land with obligations of taxes, tributes, labor and contributions to war efforts (Kebede, 2002). The diversity of tenure systems that were practiced in the south formally ended with the conquest of those lands and their incorporation into the Ethiopian state, although many customary systems continue informally. One example of how informal, cultural systems continue to predominate in decision making is inheritance. Ethiopian land laws stipulate that men and women have equal right to land acquisition and daughters are entitled to inherit land, but as of 2012 only three percent of all landholders in Ethiopia are young women, and a vast majority of household heads say that women will not inherit land from them (Bezu and Holden, 2014). In one district in Wolaita only

six percent of household heads voiced the intention to bequeath land to their daughters (Bezu and Holden, 2014).

The Marxist-inspired land reform implemented by the Derg was similar to the collectivization and redistribution policies implemented in other countries, such as in China and the Soviet Union, with each having its own unique manifestations (Barnett, 1953; Lin, 1990; Nolan, 1976). In the Ethiopian experience, the Derg re-distributed land to all people, regardless of lineage, in an effort to end the feudal systems built upon entrenched and institutionalized discrimination. In addition to redistributing land held by large land holders, the reform sought to make the laws of land holding equal, whereas in the past religious and/or ethnic groups were barred from living or owning property in certain areas (Ahmad, 2000). At the same time, customary forms of land tenure, some of which included institutionalized redistribution practices, were also barred. The Derg deemed that land transfers were only permitted from one family member to another, while leases, rentals, exchanges, mortgages and sales were prohibited. Additionally, land size was restricted to 10 hectares and the use of laborers was prohibited (Kebede, 2002). Community associations, also called Peasant Associations, were created by the Derg and utilized to redistribute land throughout the country. These associations continue to operate as the lowest level of government administration in Ethiopia.

Critics of the Derg land reform argue that redistribution led to instability, was inefficient and inhibited the development of a land market (Rahmato, 2004). While redistribution offered a degree of land ownership equality, it also increased land insecurity. Landholders realized that the government could take and redistribute land at will – a process largely based on household size, which is constantly changing (Holden and Yohannes, 2001). However, many of the criticisms of the Derg relate not to the regime's ideas, but the way it implemented them. While the Derg successfully reformed land ownership throughout much of Ethiopia, it increasingly adopted violent tactics to achieve its objectives. Furthermore, those who were given redistributed land were not given permanent or secure tenure to the land, a situation that deterred investments.

When the EPRDF overthrew the Derg they retained state ownership of land, and made only minor adjustments to the tenure system. Some of these changes included the

permissibility of short-term land rental and a reduction of land redistribution activities. While the government sought to retain ownership of all land, it also had to deal with problems that resulted from a lack of individual ownership, such as conflict, irresponsible land use resulting in deforestation, degradation and erosion, and the discouragement of investment in land management due to a lack of tenure security, such as investing in costly and labor intensive terracing systems. The first regional state to pilot a land-use certification system was Tigray in 1998, followed by Amhara in 2003, and then Oromia and SNNPR in 2004. The Ethiopian Constitution continues to forbid the sale or exchange of land. However, the newly introduced certification system allows individuals to gain the right of land use and offers a greater degree of land security (Mekonnen, 2012).

The land certification program was primarily aimed at reducing tenure insecurity and the resulting negative impact on investment (Deininger et al, 2003; Deininger et al, 2007). There were other reasons to make these changes, such as seeking a resolution to land conflict and finding a way to counter deforestation, land degradation and erosion. Since implementation, increased investment has occurred, along with other direct and indirect benefits: conflicts have been reduced, women's control of land has moderately improved and yields have risen (Bezabih, Holden and Mannberg, 2016; Deininger, Ali and Alemu, 2009; Deininger et al, 2007; Gebre-Egziabher, 2013; Hagos and Holden, 2013a; Hagos and Holden, 2013b; Holden, Deininger and Ghebru, 2011).

The Government of Ethiopia recognizes that rapid urbanization poses significant challenges, one of which is the high rate of urban unemployment (Mains, 2012; Serneels, 2007). The existing tenure system, which only allows for direct family inheritance, slows the urbanization process because if the land is left unused, it returns to the government. A particularly strict policy was instituted in Tigray Regional State according to which only those dependent upon their parents can inherit land from them; those with land of their own or other sufficient livelihood options (e.g. government employment) are ineligible for land inheritance (Rahmato, 2004). As a result of the inheritance system, families do not move to urban areas as units. Households have members of the family stay in the rural area in order to retain control of the family land. The explicit aim of the inheritance laws

is to restrict the means by which land can be transferred (although informal markets are common; Holden, Bezu and Tilahun, 2016; Holden and Ghebru, 2016). The indirect outcome works to slow urbanization and maintain family ties to rural communities. As the impact this program has had on slowing urbanization has been realized, it prohibits changes to the land tenure system toward privatization as that would increase urban migration.

Several studies suggest rural residents prefer the current system of public ownership to private ownership (Nega, 2002), including one study showing increasing resistance to the legalization of land sales (Holden and Bezu, 2016). Similarly, there is a relatively high level of support for the land certification program, which continues public ownership while offering a greater degree of tenure security to the individuals using the land (Berhane et al, 2014; Berhane, Hoddinott and Kumar, 2014; Gilligan, Hoddinott and Taffesse, 2009, IFPRI, 2013). Amidst this general support, it is unclear the extent to which rural community members view the program as a political tool. It is possible to assess this by evaluating the areas of resistance to land certification from a perspective of rejecting government control, even if there are benefits embedded in the certification process. As far as I am aware, no such study has been conducted with an objective to analyze areas of weaker implementation of land certification and its potential causes.

For rural residents in Wolaita land certification has unfolded over the last twelve years, with positive impacts (such as the land certification being used as a means to access credit). However, the broader laws of land tenure have only partially been implemented, often at the discretion of local administration (Chinigo, 2013). As outlined by Berhanu and Poulton (2014: S197), many of the rural services and programs are driven by the “twin imperatives” of economic growth and political control, which offer a limited degree of benefit while at the same time disempowering citizens to act and speak freely. Due to the politicization of nearly all services and programs, a refusal to engage is considered a political act of opposition to the ruling government (Cochrane and Tamiru, 2016). One explanation of why some individuals refuse to engage or participate, is what Scott (1985) describes as everyday forms of peasant resistance. Other reasons for resistance to certification include the desire to avoid taxation. My experience in Wolaita suggests that

the power relations in this context are significantly different than that of Scott's study area, and that households actively seek land certification, demonstrating that the benefits outweigh the costs of this program.

Social Safety Net

Ethiopia experienced famines resulting in large losses of life during the 1950s, 1960s, 1970s and 1980s (de Waal, 1991; Gill, 2010; Graham, Rashid and Malek, 2012; Sen and Dreze, 1999; Wolde Giorgis, 1989). Improvements were made in reducing famine related deaths after the 1984/85 famine. For example, in 2002 the early warning signs of a pending famine were noted by the government, which by 2003 was projected to affect an estimated fourteen million people with the potential to be one of the worst famines in history. For context, the globally publicized famine of 1984 affected an estimated eight million people (Gill, 2010). Due to proactive measures taken by the government and support from international partners, the loss of life was limited to three hundred. One assessment found it remarkable that there was no measurable increase in child mortality during this drought, one of the country's most widespread (de Waal, Taffesse and Carruth, 2006).

Although humanitarian responses improved, it was recognized that humanitarian activities, such as those in 2002/03, were costly and unsustainable. The Government of Ethiopia, in discussion with its international partners, began a move to more proactive programming. One of the outcomes of this was the (re)establishment of resettlement programs, which the ruling government had halted since coming to power. Upon re-starting resettlement, the government initially planned to resettle over two million people (IRIN, 2004). A second outcome was the planning and establishment of the Productive Safety Net Program, launched in 2005. The Safety Net sought to reduce risk and transfer goods to food insecure households, and would do so in a way that supported the retention of assets in order to support recovery and resilience in response to food insecurity and drought (Cochrane and Tamiru, 2016).

The Safety Net supports food insecure individuals and households with predictable, multi-year transfers; tailored to match the needs of each Regional State where it operates. Its targeting processes have been found to be well designed and implemented (Fisseha, 2014; Kassa, 2013), and that it more effectively targets the intended beneficiaries than the average global safety net program (Coll-Black et al, 2012). Studies indicate that the program efficiently achieves its objectives (IFPRI, 2013; Katane, 2013) and has resulted in positive impacts, such as improved child nutrition (Debela, Shively and Holden, 2014). Research also suggests that the program has supported agricultural livelihoods with no known disincentives (Bezu and Holden, 2008). However, it appears that the program has mainly had a stabilizing effect and is not effectively supporting people to overcome poverty (Maxwell et al, 2013; Rahmato, 2013; Siyoum, 2013). As a result, the program may have limited impact in effecting long-term change unless combined with other initiatives (Gebremariam et al, 2013).

There are two political considerations with regard to the Safety Net. First, the Government of Ethiopia recognizes food insecurity as a threat to political stability. A critical assessment of the Safety Net might suggest the effort is primarily a self-serving political one, whereby enhanced food security strengthens stability and prevents unrest. The selective regional coverage, which does not align with the areas in greatest need of the Safety Net, is one indication of this political purpose (FAO and WFP, 2008; see Figure 7.1). A second political purpose of the Safety Net is the entrenchment of political power and control in rural areas. As demonstrated by Cochrane and Tamiru (2016: 662), while the program has had a positive impact on the included households, its implementation was politicized as an “intentional means of enhancing administrative power and control while maintaining the appearance of accountability and participation for the donor community.” The implementation of the Safety Net effectively disincentivizes political neutrality and political dissent. Any form of community participation or citizen engagement that is not sanctioned by or in support of the current government is opposed, with some doing so being labeled as terrorists.

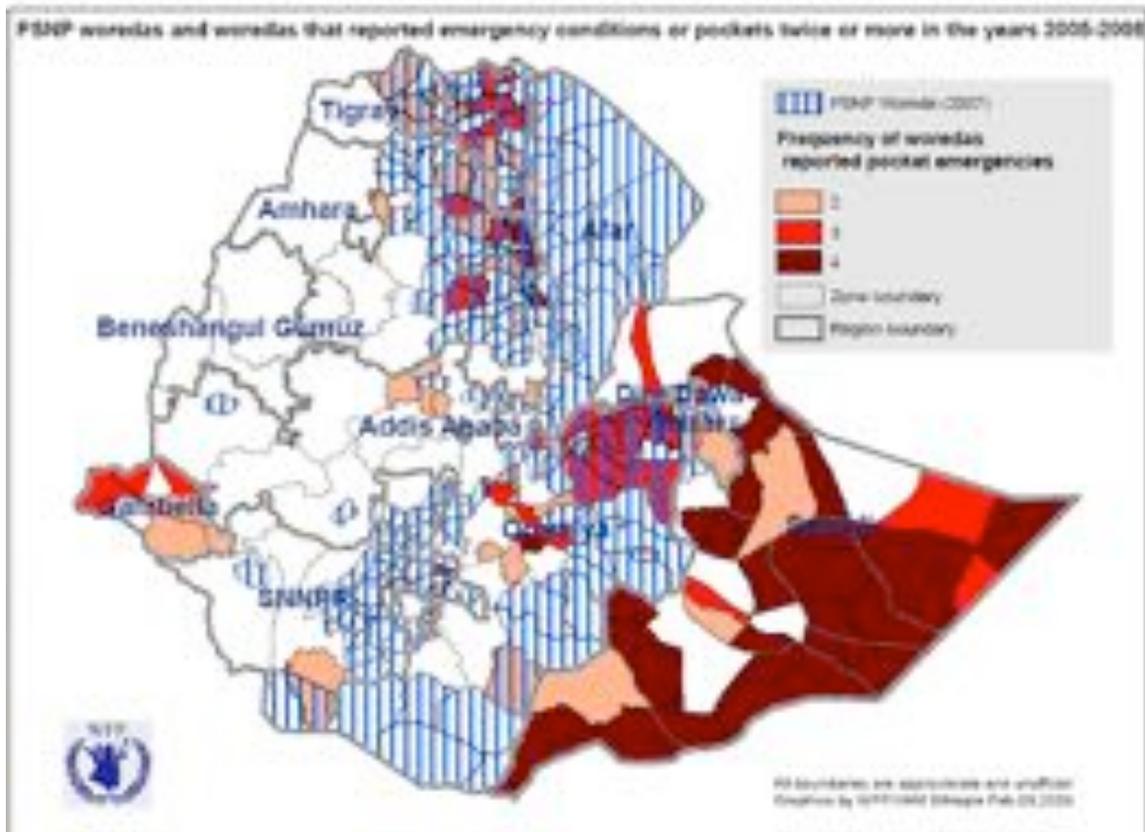


Figure 7.1 Safety Net (blue) and Reports of Emergency Conditions (red)

Source: FAO and WFP, 2008.

The politicization of program design and implementation is not new, or unique to the Safety Net. De Waal (2015: 69) writes that these processes have long been a political tool in rural Ethiopia: “Party members had preferential access to state-allocated benefits, ranging from enrolment in higher education to subsidized fertilizer and small-scale credit. Sometimes they were the only ones who could get these benefits.” Similar political purposes have been identified as primary for the agricultural extension program (Berhanu, 2012; Berhanu and Poulton, 2014; Planel, 2014), resettlement program (Hammond, 2008), decentralization initiatives (Chinigo, 2013) and rural development programs more broadly (Segers et al, 2008). In this regard, the findings of Cochrane and

Tamiru (2016) about the Safety Net are in line with a range of, largely qualitative, studies that identify the politicization of rural programs and services.

The government established the Safety Net as one of the means to address inequalities and chronic food insecurity. In many ways, this program has been successful in preventing famine, reducing malnutrition and supporting households to maintain assets and increase income (Coll-Black et al, 2012; Debela, Shively and Holden, 2014; IFPRI, 2013; Katane, 2013). With this success, however, it must also be recognized that this program also has a dual purpose, entrenching political control and eliminating options for citizen engagement and participation in decision making (Cochrane and Tamiru, 2016). The politicization of programming is a theme that runs throughout this chapter and this dissertation, one which I believe remains an understudied and undervalued component of development activity.

Agricultural Foreign Direct Investment

Foreign direct investment in the agricultural and livestock sectors in Ethiopia did not begin in 2006. However, that year marked a significant shift, largely in the form of a rapid increase of large-scale land leases. The figures on the extent of how much land has been leased vary significantly (in hectares): 602,760 (Cotula et al, 2009), 2,412,562 (Land Matrix, 2013), 3,524,000 (Friis and Reenberg, 2010), 3,619,509 (Oakland Institute, 2011). In theory, the figures ought not differ so widely, as Ethiopia is one of the few nations that posts land-lease contracts online (Colula, 2013). Confusion arises when such numbers include the amount of land available for lease, committed to lease, and actually leased. As the FAO reports (Hallam, 2013), actual land leases are fewer and smaller than often reported. However, the issue is politically charged. Advocates and NGOs tend to gain more attention when they have a more alarming call to attention bolstered by large figures, which may explain why an American activist NGO, Oakland Institute, lists the largest figure.

The large-scale land lease issue, at least in Ethiopia, requires some deconstruction, as the headlines and activists suggest a different picture than the reality. The common narrative, that oil-rich Gulf nations are buying up agricultural land in developing nations, does not accurately describe the process in Ethiopia (for more, see: Cochrane and Amery, under review). The country doing the largest foreign investment in Ethiopian agriculture between 2000 and 2009 was India (32.4%), followed by the EU (21.2%), while Saudi Arabia accounted for only three percent (Oakland Institute, 2011). In many countries the largest portion of investors are diaspora and nationals; in Ethiopia, national investors account for forty nine percent of the leased land (Cotula, 2013). The trends differ by region, however. In the Amhara Regional State, for example, of 960 land leases only three were held by foreign investors; however, they leased almost a quarter of the land involved (Bossio et al, 2012). In contrast, in Oromia Regional State, where the majority of foreign investments are taking place, almost a quarter of investments were foreign and accounted for over ninety percent of leased land (Bossio et al, 2012). Although the amount of land leased is large, smallholder farmers continue to be dominant in Ethiopian agriculture, cultivating more than ninety percent of the cultivated land (Taffesse, Dorosh and Gemessa, 2012).

In addition to increased investment in agriculture, what is notable about the 2006-2013 period is that the Government of Ethiopia actively promoted international investment in the agricultural sector (Lavers, 2012). They were offered tax breaks, very low rental rates, as low as US\$ 1.15 per hectare, and a range of other incentives (Bossio et al, 2012). However, the potential benefit of large-scale land acquisitions relies upon an array of other government policies and enforcement thereof. These policies include those related to capital inflows, technology transfer, environmental regulation, water use, employment and interactions with smallholder farmers (Hallam, 2013). After leasing hundreds of thousands, if not millions, of hectares of land, the Ethiopian Ministry of Agriculture realized that many leases had been made on speculation amid a rapid rise of food commodity prices. On up to a third of leases no operations began at all (Africa Intelligence, 2013). Other studies suggest only twenty percent of the land involved in these investments have commenced farming operations (Hallam, 2013). Supportive evidence for this speculative push is that a large portion of investment took place in 2008-

09, during a major food commodities price spike, and that many investors were not agricultural companies (Hallam, 2013). For those that have started operating, another important factor in Ethiopian land leases, is the role of biofuels. This trend is the result of European Union alternative energy targets that enable investors to obtain long-term sales contracts for biofuels (Busck et al, 2012). It has been suggested that biofuels may encompass up to 40 percent of all global agricultural deals (Kugelman and Levenstein, 2013). As discussed below, the rush for biofuel market development has also affected Wolaita Zone.

Competing interests for local resources, particularly access and control of water, play an important role in large-scale agricultural investments, which may run counter to the interests of smallholder farmers. In most cases, the power dynamics are unequal and investors are given priority due to their governmental support (Bues and Theesfeld, 2012). Standard lease agreements offered by the Government of Ethiopia allow investors to build dams and boreholes for irrigation, after approval by the respective authorities (Bossio et al, 2012). Lavers (2012) finds the only major gain from the land-lease development strategy is an increase in foreign exchange earnings, with the drawback of greater potential for domestic food insecurity as self-sufficiency is substituted for a trade-based approach. Cochrane (2012) has suggested that the incentives encouraging foreign direct investment could be shifted in order to better support the smallholder base of the economy, rather than competed with. An example is encouraging investment in upstream agricultural production operations that would be supplied by smallholder farmers. This is supported by other research that suggests greater land size is not correlated with greater productivity; rather, it is the practice of efficient farming that should be prioritized (Deininger, Nizalov and Singh, 2013). Although robust studies are few, Shete and Rutten (2015) analyzed one large-scale land lease in Oromia Regional State contracting with smallholder farmers found that, due to competing land use needs, household food security for community members declined, as did their income.

Ethiopian Commodity Exchange

In 2008, the Ethiopian Commodities Exchange (ECX) began operations. It was commissioned by a government proclamation, with the objective of developing an efficient, modern trading system that protects the rights of sellers, buyers and intermediaries (FDRE, 2007). The ECX attempts to address a number of challenges faced by the agricultural sector. For example, due to a lack of access to price information smallholder farmers were not able to sell their products at market prices, resulting in their underpayment by intermediaries. In addition, the absence of national market integration resulted in a lack of quality control and regulation. The ECX is owned by a partnership of market stakeholders and the Government of Ethiopia. Since establishment, it has expanded rapidly. The ECX currently has more than fifty physical warehouses throughout the country, and in 2011 the ECX surpassed US\$ 1 billion in annual trading. Although the types of commodities have expanded with time, the ECX only handles a selection of limited, primarily exported agricultural commodities.

The ECX acts as the link between different market actors (government, ECX members, exchange warehouses, clearing banks and the trading system). Members of the ECX can deposit their products at a regional warehouse. Smallholder farmers engage with this system as members of cooperatives and unions or by selling to traders, as the ECX deals only in large quantities (five ton minimum contributions). As described by Mheen-Sluijer (2010), the ECX samples, grades, weighs and certifies the products, and trading takes place at the ECX center in Addis Ababa. As per government direction, it was declared mandatory to sell all coffee on the ECX in 2009 and all sesame in 2010. There are two of the country's most important export products (Mheen-Sluijer, 2010).

In order to improve farmers' access to information, particularly in rural areas, commodity price display sites were established throughout the country. Hundreds of thousands of mobile subscribers gained access to commodity prices via mobile phones, and prices are advertised on radio, TV and print media (Dabre-Madhin, 2011). In peak seasons, the ECX toll-free call-in service receives more than a million calls monthly, seventy percent of which are from rural users (Dabre-Madhin, 2011). As a result, sellers are getting better prices for their products; for coffee sales farmers now receive seventy percent of the final

price, whereas they used to only receive thirty eight percent before the introduction of the ECX. The new system also ensures payment, which provides stability in the marketplace.

Recommendations to strengthen food security include policies to develop markets and improve market access (e.g. Attwood, 2007; Holden, Shiferaw and Pender, 2005). Since smallholder farmers' primary source of income is from their agricultural yields, ensuring that they receive the highest percentage of the price of those commodities enhances their livelihood viability. However, the ECX presents two main challenges. The first is that smallholder farmers cannot directly see to the ECX, and therefore for the average household in Wolaita, despite a regional warehouse being located in Sodo, they do not interact with it as sellers. Limited cellular network coverage restricts the number of farmers able to benefit from the information provision services as well. Thus, one must question who is receiving the increased commodity price share, as it appears to only marginally benefit smallholder farmers. It appears that intermediaries and traders benefit most, as they are best able to utilize real time prices, hold stock for higher prices, and negotiate lower prices with farmers. As a development intervention, which the ECX does not claim to be, the enhancement of regional and national markets offers minimal benefit to rural farmers. Rather, it is those with more land and assets within rural society who have the excess yields and the negotiating power to benefit.

In theory, rural cooperatives, which have been supported for decades by the government's agricultural extension program and workers, would give rural community members the power to engage with the ECX and take advantage of the opportunities it offers. However, as outlined by Tefera, Bijman and Slingerland (2016), the poorest farmers tend to be excluded from cooperative membership and the impact on smallholder livelihoods is inconclusive. Farmers in the research area suggest that community-level institutions, such as buying and selling cooperatives, are ineffective and largely non-functional. The result is that the benefits of the ECX are concentrated for the intermediaries and large landholders within the supply chain. The impact of cooperatives mirrors the impact of agricultural support in the 1960s and 1970s, in that the cooperatives have "failed to serve the people for whom they were destined" (Belay, 2003: 56).

7.2 ADOPTION OF PROGRAMS AND SERVICES

The literature on adoption of rural agricultural programs and services in Ethiopia suggests that adoption rates are low and participation within programs experiences significant discontinuation (Bonger, Ayele and Kuma, 2004; EEA/EEPRI, 2006; Gebrehiwot and van der Veen, 2014; Spielman, Mekonnen and Alemu, 2012; Taffesse, Dorosh and Gemessa, 2012). Compared to the experience of other countries, this finding is not unusual. In Rwanda, for example, one evaluation found that only seventy of 4,000 farmers had implemented the full agricultural development program (Uvin, 1999: 134). Part of the challenge, as outlined in the history of the Ethiopian experience as well as that of Rwanda, was that agricultural extension focused on a limited number of export cash crops, which were not the priority of smallholder farmers (Uvin, 1999: 130). The top-down approach has consistently been ineffective. In the Rwandan experience, it was in the 1980s that the failure of insufficient participation became apparent (Uvin, 1999: 132). In Ethiopia, it was not until the mid to late 1990s that participation was considered, meaning that farmers would have the opportunity to select crops and seeds within the extension packages. Programs nonetheless continued to be offered as packages and these continued to experience low adoption (Limenih and Tefera, 2014). When participation did occur, it remained limited and often shaped by national priorities, particularly export crops, such as coffee. Unfortunately, in many instances, in and beyond agriculture, the Government of Ethiopia refers to participation as acceptance or adoption rather than as an ability to be involved in the design, format or implementation of a program (Cochrane and Skjerdal, 2015).

One of the key insights drawn from the previous chapter was that few generalizations can be made, and that rural livelihoods exist within dynamic and complex environments wherein households make unique choices based on their respective priorities, opportunities, constraints and challenges. The assessment of adoption rates in this study similarly finds that few viable generalizations can be made. Rather than offering simplistic

generalizations about adoption broadly, the findings suggest that some extension activities experience high levels of adoption, such as fertilizer, pesticide and improved seed, while others experience lower levels, such as microcredit and agricultural extension training. To increase the complexity, farmers adopt (or do not adopt) on a crop by crop basis, rather than as a choice of everything or nothing. For example, improved seeds are used for maize, but not for cabbage; pesticides used for vegetables and teff, but not for sorghum; planting methods advocated by extension workers are used for maize, but not for teff; some fertilizer is purchased only due to political pressure, and then re-sold at a loss. Even these crop-specific and input-specific generalizations fail to hold true when walking from house to house, as each farmer brings their own experiences, priorities, options and barriers to the table.

The household survey data could be interpreted simply as displayed in Table 7.1, as the adoption rates for each of several major agricultural activities (e.g. adoption of improved seeds, fertilizers, and pesticides), as is commonly done in the literature. However, it was in the focus group discussions that the crop- and input-specific nuances emerged. Consider “improved seed” as a category: farmers were in agreement that the improved cabbage seed provided by the government was not suited to their agroecology, and therefore they saved their traditional cabbage seeds. There was also agreement that the majority of farmers used improved maize seed and the traditional seeds were ‘lost.’ Thus, the use of improved seed and adoption of fertilizer, as common survey questions (e.g. Abate et al, 2016; Million, 2014), provide limited quantitative insight, whereas the nuance requires qualitative elaboration. Future household surveys could make these assessments on a crop by crop, and input by input basis. However, the burden on farmers in answering such a survey would increase significantly. If, for example, one were to ask about the range of inputs for each primary crop, the survey would balloon in size. For the household survey used in this study, at least an additional forty eight questions would have been added (twelve key crops for at least four input options). For the purposes of this research, focus group discussions were sufficient to explore these questions.

Table 7.1 Agricultural Practice Prevalence, % Engaged In

Community	Improved seed	Seed saving	Fertilizer	Pesticide
Adeaaro	58	30	85	82
Adea Ofa	80	64	93	64
Buge	79	51	94	73

'Improved seed' was widely used for a variety of taro, which was recently introduced as a product of a national research center. It was popular because it enabled an increased yield and it was also easier to prepare this taro for consumption. As with cabbage seed, not all varieties provided via the governmental extension system are preferred. A diversity of enset tree varieties, using traditional seeds, continues to be purposefully maintained (Tsegaye and Struik, 2002). The strong socio-cultural value of enset is one factor that inhibits change, but so too is limited research on locally-specific, non-export and regionally consumed crops such as enset. Crops that are new to the region, such as avocado and in the irrigated areas, tomato, are all 'new' as they were not traditionally grown. Thus, the existence of only moderate levels of improved seed adoption ought not to be understood as a rejection of agricultural extension work, but rather farmers negotiating and navigating the menu of options available to them and selecting those which best meet their needs and priorities.

Due to poor quality and irregular seed supply, as well as its high cost, many farmers continue to save their own seeds. This, however, is not simply a matter of adjusting the price and improving the supply or selecting for suitability. Many farmers cite issues with later generations of 'improved' seed. The first generation produces greater yields, but later generations do not retain this performance level. For clarity, these seeds are not genetically modified (GM) seeds, which remain heavily restricted for food crops in Ethiopia (Abraham, 2013), but are varieties developed through conventional plant breeding. Regional agricultural research centers within Ethiopia, which are public enterprises, support seed breeding and replication. An improved variety of taro, developed at the local research center, was widely praised and adopted by farmers

throughout Wolaita. Farmers in Adea Ofa explain that new maize varieties were introduced between ten and fifteen years ago, but it was only in the last three to five years that yields began to drop. However, since the varieties performed well, most had stopped saving the old seeds. As a result, farmers in Adea Ofa explain, the traditional seeds “disappeared because the hybrid seeds that were introduced were more productive and all farmers changed their seed.” The resulting seed loss forced farmers to repurchase seeds in the market. There are seed bank initiatives in Ethiopia seeking to preserve genetic diversity (Provost, 2014), although farmers in Wolaita have not interacted with them, nor have they started a similar project for their locality.

While seed saving continues, it is a more restricted set of seeds that are saved, which does not maintain the significant diversity that was previously present. For example, communities in Ethiopia continue to purposely maintained at least fifty varieties of enset (Tsegaye and Struik, 2002), as well as a great diversity of seed for cereals such as maize and barley (Beyene, Botha and Myburg, 2005; Samberg et al, 2013). This diversity of options enabled farmers to adjust to different conditions, such as elevation, soil type and moisture, even if yields were not optimal. For many crops in Wolaita, this is no longer the case. “The original is not planted anymore” farmers explained, because “people in Wolaita are fast to change crops and adopt changes, which is why they lost traditional seeds and practices.” In Buge, for example, community members explained that while seed saving was common (57%), it was not done for all crops. Seed saving, they mentioned, was common for maize, teff and haricot bean. In Adea Ofa, farmers stated that they “are not ignoring the knowledge and experience of the past,” and they continue to maintain local varieties of certain crops, such as for sorghum and cabbage, which performed better in their area than the ones made available by the government.

These purposeful diverse crop- and input-specific practices demonstrate the limited usefulness of survey questions asking for generalizations. Beyond missing nuances as identified by Chambers (2008), this approach may lead to incorrect findings and therefore contribute to poorly informed design and implementation of programs and policies. At this juncture it is worth reiterating the usefulness of participatory, co-produced research

methods, which do not rely on the researcher's assumptions to determine which questions and metrics are most appropriate.

The greatest agricultural extension success is arguably fertilizer. Usage rates of fertilizer in Damot Gale are quite high. This is in line with the findings in the literature that higher population density and smaller land size are associated with higher fertilizer use (Josephson, Ricker-Gilbert and Florax, 2014). Population density and land size, however, may not be the only factors worth considering when considering fertilizer adoption. Some farmers say they purchase fertilizer because of political pressure, and resell it because they cannot afford to use it. The resale results in a loss, as a fifty kilogram bag of fertilizer is purchased for 700 ETB and is sold on the market for 590 ETB. Community members freely expressed that these inputs were purchased because of political expectations; they “buy it to show the government, and then sell it.” This validates the consensus that the main reason farmers cite for not using fertilizer is its unaffordability. For context, the 700 ETB fertilizer cost may account for a significant portion of poorer households annual income. Consider the daily labor work mentioned in the previous chapter. A best case scenario of laborious collection of grass or firewood along with carrying it for market sale in a single day is fifteen ETB, making the fertilizer purchase equivalent to nearly forty seven work days.

The success of fertilizer in smallholder Ethiopian contexts is supported in the literature (Taffesse, Dorosh and Gemessa, 2012). Statistical analyses conducted by Yu and Nin-Pratt (2014) identified knowledge and access as key enablers for adoption. However, in a study of 5,700 rural households, Million (2014) found that households with higher levels of wealth were more likely to utilize fertilizer, while those with less wealth were less likely. In addition to having greater wealth, the household survey found that the households with better access to training, fertilizer and improved seed had larger land holdings, suggesting a double penalty. There are financial barriers due to having fewer assets as well as exclusion from programs due to those same assets. Those with more assets are prioritized, formally as high potential producers as well as informally for socio-cultural and political reasons. Based on the available literature, it appears that survey-based

quantitative studies miss many of the nuances that emerge in qualitative or mixed methods studies.

Lastly, pesticide adoption appears to be high in all three communities, although pesticides are not used for all crops. Farmers in Buge explain that pesticides are only used for teff and vegetables, which are both high-value crops sold to the market. While these crops are crucial for annual income, there is an increasing awareness of the negative health impacts of pesticides, which may be another reason why these chemicals are not used on crops typically consumed within smallholder households. Noteworthy is that pesticides such as DDT are commonly used in Ethiopia, and there are multiple reports of illness due to exposure (Karunamoorthi, Mohammed and Wassie, 2012; Nigatu, Bratveit and Moen, 2016). Households do consume teff and vegetables, however these crops are primarily grown for sale to the market. Farmers also explain that while pesticides are, like fertilizers, promoted and often provided by agricultural extension workers, the same political pressure does not exist for their purchase.

While the data presented thus far in this chapter implies a positive impact of agricultural extension services, there are other aspects of the extension package that perform far less well. Examples of this include agricultural training and the provision of credit. While these are two examples of failed components, these results show that discontinuation and dismal levels of complete package adoption do not represent the actual impact of the programs. A much different finding would emerge if the programs and services were provided and assessed based on its individual components. Specific assessments would enable far more specific recommendations to be made, because they would improve understanding about why certain components have worked well, while others have not. Yet, ever since agricultural extension began in Ethiopia, packaged approaches have been utilized by all three governments involved in design and provision. After more than half a century these packages are still not adopted in full. Based on the crop assessed, adoption rate ranges from seventy one to twenty nine percent, with significant regional differences (Tefera et al, 2016). As this study shows, however, that does not necessarily equate with failure for all components of the package.

The data on credit is challenging to untangle. Farmers perceive the governmental microfinance institute and the governmental provision of credit for inputs as a single entity. While the institutions do technically differ (being the South Omo Microfinance Institute and a service offered via the agricultural extension program, respectively), both are governmental operations intimately connected with the community-level government personnel promoting development activities. The data on borrowing, presented in Table 6.23 in the previous chapter, suggests that approximately a third of all households access credit via the microfinance institute. However, the household survey also asked households how they acquired inputs, with forty one percent answering credit. While these figures do not match perfectly, they are similar, and allow for an explanation as to why the figures provided by the government on credit access differ from the household survey figures. As outlined in the in Section 2.3 on Wolaita, data provided by the zonal administration suggests that fewer than five percent of households access credit via the microfinance institute. This finding sheds light on why greater qualitative context is required in survey data analyses indicating positive relationships between credit and input use (e.g. Abate et al, 2016).

These datasets can be reconciled through an improved understanding of the farmers' perception of governmental programs as interconnected, rather than analyzing them as distinct entities. The provision of credit is largely understood as the credit provided for inputs, as practiced by many households, not as the microfinance institute, which serves a small minority of relatively wealthy households. One of the causes of uptake failure for microfinance is a lack of accessibility; farmers need to come to a branch, often located in towns and cities, which is difficult for remote community members. However, an even greater barrier is the inflexible terms of repayment, and the very real threat of having assets and/or land taken as a means of debt collection by the government. Informal lenders do not have the authority to take land, but as the owner of all land, the government, which is the only entity formally offering credit and microfinance services, does. Community members explained this was a primary reason why they did not seek such loans. Even if the instances of land loss due to loan payment default were few, they were well known. Furthermore, the greatest factor affecting the ability to repay is not in smallholder farmers' control – the rain – and thus the risk is too great. In this instance the

barrier is not only a lack of options, or of opportunities for investment, but the disincentives for borrowing and establishing new agricultural businesses.

Burns and Worsley (2015) present the example of India, connecting this to the long-term political and economic impacts of the Green Revolution. In that instance, credit facilities for agricultural inputs have disproportionately benefited larger farmers and created chronic debt. A decline of commodity prices reduced the income of smallholder farmers, some of whom had to sell their land in order to repay debts. Furthermore, off-farm employment options were reduced due to mechanization. The result was a widening of inequality, and a worsening of the situation for the poorest farmers. In Wolaita, these trends can also be observed, with land loss and inequality increasingly becoming a concern and the provision of credit only one of the many development activities that are generating these changes. The most food insecure are unable to benefit from the services offered, particularly the landless, but also those who are not engaging with markets, unable to access credit, and too poor to afford inputs. Many smallholder farmers experience an inability to benefit due to factors beyond their control.

Uvin, in speaking about the Rwandan experience, states that “the way development was defined, managed, and implemented was a crucial element in the creation and evolution of many of the processes” (1999: 3) because “the way development (aid) is defined and implemented interacts with processes of elite reproduction, social differentiation, political exclusion, and cultural change” (1999: 6). The over five hundred protests that have occurred in rural Ethiopia since 2014 (HRW, 2016) are an outcome of the ways in which development is implicated in the advancement of inequality, the entrenchment of elite control, further marginalization, social differentiation and political exclusion. As Husmann (2015) points out, marginality is not limited to the political realm. In addition to political marginalization there are also social, economic, ecological and biophysical margins. Mapping these layers of marginality in Ethiopia, Husmann (2015) finds that SNNPR is one of the most marginalized regions of Ethiopia, along with Afar Regional State. Development practitioners, policymakers and researchers need to be more attentive to the ways in which these margins are entrenched and ignored by standard modalities of engagement.

Agricultural training, which is given freely, provides an even more complicated set of results. Based on household survey data, the communities with weaker food security (Adeaaro and Adea Ofa) interact with agricultural extension workers more frequently, but receive less training (Table 7.2). In Buge, where food security is relatively stronger due to access to irrigation, the reported number of interactions with agricultural extension workers is relatively low, but reported numbers who had received training were the highest. Thus, at face value, it would appear that greater interaction with extension staff is correlated with less training and greater food insecurity.

Table 7.2 Agricultural Extension Support

Community	Average # interactions with extension staff / year, by household	% Received training
Adeaaro	14	18
Adea Ofa	8	35
Buge	6	57

The above correlations, however, assume that interactions with extension staff primarily support agricultural livelihoods and offer training. As noted above, this is, at best, questionable. Agricultural extension workers, particularly in the year of this research (an election year) were actively engaging with all residents to ensure all votes would be made for the ruling party. Thus, more interactions may actually correlate with areas of greater political insecurity. Viewing the situation from this political perspective, the data becomes more coherent. Food insecurity has been historically related to political discontent, and the most food insecure communities were more actively engaged with by the ‘development agents’ within their communities, offering both carrots and sticks as incentives and disincentives for securing votes. In one community, an agricultural extension worker threatened to close the Safety Net program if the ruling party lost the election. As outlined above, political patronage of service and goods provision has long been common in rural Ethiopia, and thus little has to be explained explicitly, as the

consequences have been normalized. Alternately, Buge experienced the fewest interactions with extension workers, despite having the best Farmer Training Center in the region. Political unrest may have been less of a threat in Buge as household members within it experience much higher levels of food security, and are far less likely to take a risk by supporting alternative political parties that may result in the loss of their recent gains.

There are also non-political reasons that help explain the divergence of levels of training within the three communities. For example, the agricultural extension worker for Adea Ofa lives in Boditi town, more than twenty kilometers away, “because the lifestyle is not comfortable,” the worker told me. Community members explain that the extension worker is in Adea Ofa no more than two or three days per week, often doing so to attend government meetings. The extension worker was so bold, despite being required to live within the community according to his job description, to ask for financial support to go to and from Boditi town while we conducted research in Adea Ofa. Few people in the community even knew who the extension worker was, who relied upon local contacts in order to provide information about the community when reporting to the government.

Instituting programs to reduce rural absenteeism in workplaces, however, is not a challenge unfamiliar to rural Ethiopia. The Ministry of Health hires and trains community health workers from the area of work and provides housing for staff to ensure they remain within the community. In contrast, the agricultural extension workers are not given housing, and do not need to be from the area. In the three communities in which this research took place, all extension workers were from Wolaita Zone, but this is not always the case. While working in Benishangul Gumuz Regional State I encountered agricultural extension workers from different Regional States who did not speak local languages. This suggests that the *raison d’être* of agricultural extension workers may not only be agricultural extension. Berhanu and Poulton (2014) suggest politicization occurs in agricultural extension worker selection, training, and retention in the course of their activities. Furthering political objectives is the second of the “twin imperatives” (Berhanu and Poulton, 2104: S197).

The problem of extension worker absenteeism in Adea Ofa can be contrasted with the extension workers in Buge, where the Farmer Training Center was large, active and supported by engaged extension workers. Numerous crops were being tested and new methods piloted. Buge's Farmer Training Center was selected by the SNNPR government as a 'model' for others to learn from. Community members were cognizant of the important role these workers played in actively supporting them and their agricultural livelihoods. However, even in well functioning Farmer Training Centers like that in Buge, there is only one per community, which is located several kilometers from those who live on the periphery of the community. The result is unequal access to training and other forms of support.

Similarly, a livestock health post exists, but is not staffed all year and commonly has shortages of supplies. Furthermore, these animal health posts do not have a cold chain (refrigerated end-to-end system) in their distribution system for the supply of commodities, despite the fact that many vaccines require cold storage, thus reducing the efficacy of temperature sensitive pharmaceutical items. This too, is not an insurmountable challenge. In fact, health posts have made significant progress in expanding effective cold chains for pharmaceutical supplies. In a 2015 report for Save the Children, I suggested collaboration to ensure that temperature sensitive items are distributed to communities through the Ministry of Health cold supply chain system, and transferred for distribution via the animal health post at the community level. That project ended without progress being made on this initiative.

A further complication of a poorly functioning supply chain system for animal health pharmaceutical supplies is that it has long-term impacts that negatively affect the use of these services. In Buge, farmers explain that many community members lost local chicken breeds in the most recent season: "We have livestock extension, have the vaccine for chicken, but they die before the vaccine arrives and still die after the vaccination is given. The vaccination is not working." This problem and reaction is not specific to Wolaita: while I was in Benishangul Gumuz Regional State in 2015 working with Save the Children, very similar experiences were described to me. One of the outcomes was that farmers see the extension system as causing them much more work (as they bring their

livestock to the Animal Health Post) while providing no benefit (their animals die of the diseases they are vaccinated against). Research in Ethiopia indicates that vaccinating livestock resulted in “no significant difference in livestock mortality,” suggesting the causes were “weakness in the design and implementation of vaccination programs, including use of inappropriate vaccines, low vaccination coverage, problems with vaccine dosing, incorrect timing of vaccination and problems with vaccine storage” (Catley et al, 2009: 665). As with the many programs and services outlined in this research, failures are not related to a lack of good ideas or effort, but to inappropriate design and implementation. Canada’s International Development Research Centre, Global Affairs Canada and the Gates Foundation are working to improve livestock vaccines (IDRC, 2016), but while this research progresses, implementation improvements are required, such as utilizing the public health supply chain for highly temperature sensitive commodities.

One aspect that did not emerge in the initial focus group discussions aimed at developing the household survey was the extent to which agricultural extension services meet farmers’ needs, as opposed to promoting the objectives of others. Nationally, the government seeks to promote crops of ‘value’, meaning those of importance to national and export markets. These commodities tend to be cereals and cash crops. In some parts of Ethiopia, these objectives align, such as the cereal breadbasket of Gojjam where promoted crops have been grown for millennia. However, in Wolaita, the most important root crops are not exported. Neither are they important within the national economy. In these instances, there is a disconnect between the objectives of farmers and the government, and therefore the potential for negative impacts on adoption, as the promoted services do not align with the needs and priorities of smallholder farmers. One indication that low adoption may be impacted by a mismatch of objectives is the relatively high percentage of households that do not sell to the market at all (42% in Adeaaro, 45% in Adea Ofa and 9% in Buge). In these instances, smallholder farmers based crop decisions on their annual food security needs, not for selling at the market. In practice, this means opting for taro with an average yield per hectare of 336 *quantal*, instead of teff, which has the highest market value, but an average yield of 13.1 *quantal* (Central Statistics Agency, 2015). Further research is required to better understand local priorities, how they differ within

communities, the extent to which differences exist and how these differences impact adoption, ideally using comparative studies in different regions with different repertoires of crops.

Priorities are not limited to crop choices. International, national and regional priorities may differ from smallholder priorities for a number of development activities. For example, some NGO initiatives promote household-level composting as a more environmentally sound and sustainable source of fertilizer. Official Development Assistance (ODA) from Canada in Ethiopia avoids the promotion of chemical fertilizer and instead promotes composting systems. These household composting systems, however, pose significant costs and challenges for farmers. An example of a cost for farmers is the loss of materials that would otherwise have been used as livestock feed, forcing farmers to choose between organic fertilizer and livestock, since purchasing livestock feed is beyond the capacity of most. As well, these composting systems make “a small addition to the fertilizer”, as community members in Buge explained, and are insufficient for entire fields. In Buge, farmers use compost systems for their vegetable gardens, and chemical inputs for their fields. There are numerous similar examples of divergent priorities, the case of household composting demonstrates how external decisions have set parameters that are not viable for smallholder livelihoods. Donors, such as the Government of Canada, are limiting options for smallholder farmers, including options that are widely practiced within Canada, based on priorities influenced by externally-determined objectives. This example does not suggest that the only viable option available to smallholder farmers is chemical fertilizer. Rather, it challenges the external determination of what is deemed most appropriate for smallholders.

With regard to large-scale land leasing, its impacts are diverse and it is challenging to draw conclusions about the experience as a whole. As Uvin (1999: 9) has outlined in describing the development enterprise, conclusions generalize and simplify, and it “is likely that for any statement I make, there have been agencies [or investors] and people who acted or thought differently.” Rather than offer a statement that attempts to encompass the diversity of experiences, the focus will be on a single case study that took place with Wolaita Zone, as described by Chinigo (2015). In this instance, an investor

took a contract farming approach, establishing agreements with over 10,000 farmers, starting in 2007, to grow castor trees for biofuels. The expected yields were greatly overestimated by the investor, suggesting outputs up to ten times higher than typical for Wolaita. The investor promoted the scheme to farmers based on this calculation, portraying the revenue generation as unrealistically high. Governmental agricultural extension workers were utilized to organize training and connect farmers with the investor for making contracts. Due to the politicization of governmental activities “many farmers felt compelled” to respond positively, even when a crop that was previously only used for fencing was touted as an important new source of income (Chinigo, 2015: 202).

By 2012, the investor had left Wolaita and the business was deemed unviable. Farmers were upset that promises were not kept and contracts were broken. As with many failed agricultural investments, the government gained moderate revenues, companies lost their initial investment capital, and farmers lost their yields and income. The Israeli company behind this scheme was not the first to attempt to enter the biofuels market using land in Wolaita, nor will it be the last. Ventures such as this one place significant risk and burden on smallholder farmers. In this instance, it was farmers who were the most vulnerable and who were pressured into this scheme by governmental involvement. This case study sheds light on one of the ways in which foreign investment in the agricultural sector has affected households in Wolaita Zone. Not all investors take this approach, and not all investments follow this trajectory. Other research in Ethiopia finds that the integration of biofuel production as one component of agricultural livelihoods can have positive impacts on food security (Negash and Swinnen, 2013). Few generalizations can be drawn, and each location, crop and market will require thorough assessments in order to determine its potential viability and usefulness for smallholder farmers. Large-scale land leases are not a development activity, but the Government of Ethiopia has justified them as a means to foster economic growth, technology transfer and the creation of jobs. In many instances, the supposed benefits are suggested to be greatest for rural residents, which would translate into improved wellbeing, including strengthened food security. As the example from Wolaita demonstrates, if food security is to be strengthened amidst agricultural investment, the government must take a more proactive role to ensure contracts with farmers are upheld.

Community members strongly emphasize that, in thinking about food security, we must think beyond agriculture. An elder in Buge, considering the broader situation and the future ahead, reflected: “For the coming generation, it will be more difficult due to smaller and smaller land, so for the future we need factories near to us so our children will not leave and create a number of challenges.” In response, another recalled a past initiative that filled such a gap, relating that “within the idle period [non-agricultural season] there was previously a program for soil conservation that provided jobs in the community and improved soil quality. It had a great benefit.” While this non-governmental activity was not an example of private sector job creation, it was an example that smallholder farmers felt expanded the options and opportunities for them. They have visions of factories near their communities, but pending this unlikely scenario farmers may be required to continue migrating, an idea that Rahmato (2007) raised in response to the difficult circumstances communities in Wolaita will face with population growth and further land fragmentation.

7.3 FINAL REMARKS ON THE ADOPTION OF EXTENSION SERVICES AND PROGRAMS

The literature suggests that adoption of agricultural programs and services is low and therefore not aligned with the needs of smallholder farmers. This chapter has challenged the idea that agricultural extension services are failing. More nuanced study identifies components that have been successful (e.g. fertilizer and improved seed), and also those that have not (e.g. microcredit and agricultural training). The participatory, co-produced approach identified how averages miss data, exclude populations and present a distorted picture of lived realities. Community members emphasized that the average adoption rates do not apply equally to all the promoted agricultural practices, and vary from crop to crop. In some instances traditional seeds are maintained (e.g. cabbage and enset) and for others improved seeds are used (e.g. maize). Fertilizer and pesticide use similarly varied by crop, indicating how typical household questionnaires make invisible the

intricate and informed choices that smallholder farmers make within their agricultural practice. Even successful processes were contextualized with a framing of how these interventions are politicized and cannot be viewed simply as development activities, but also as a means of entrenching power and control in rural Ethiopia. The following chapter seeks to assess whether participatory, co-produced approaches can be a vehicle for positive change in government programs and services.

CHAPTER 8. IMPACT OF PARTICIPATORY ENGAGEMENT

The participatory, co-produced nature of the methodology utilized in this study significantly shifted the ways in which vulnerability and adoption were researched and analyzed. Community-engaged approaches, such as these, are suggested to lead “to actions which support mutual aid and collective action at the grassroots” (IDS, 2016: 1). The new knowledge obtained, it is argued, facilitates collective action for positive social change. Yet, knowledge does not always result in action. This chapter analyzes the implementation of this research methodology, to reflect on the processes of change, and what can be learned about participatory and co-produced approaches for the development of new knowledge and its relationship to change. The first section explores the theory of change embedded within this research process, the literature on participation and its impact on improving agricultural extension services. The second section surveys literature on theories of change beyond those related to participation, and explores what might be learned about potential barriers and enablers to achieving the objective of improving rural programs and services. The third section offers reflections on theories of change and the methodological approach undertaken in this research project.

8.1 PARTICIPATION & CHANGE

There is a large set of literature that focuses on change driven by citizen participation, including a variety of terminologies including grassroots change, bottom-up change, citizen action, poor people’s movements and civil resistance (Chenoweth and Stephan, 2011; Gaventa and McGee, 2010; Piven and Cloward, 1977; Schock, 2015). Rather than viewing power as something held by decision makers, these theorists and practitioners argue that people, when acting collectively, can create power and force change. Acemoglu and Robinson (2006) argue that inclusive economic and political institutions

only develop as a result when people demand their inclusion and leave decision makers no choice but to support change. They conclude that: “Inclusive economic and political institutions do not emerge by themselves. They are often the outcome of significant conflict between elite resisting economic growth and political change and those wishing to limit the economic and political power of existing elites” (Acemoglu and Robinson, 2006: 332). Theorists who focus on this form of change, such as Alinsky (1971), position the majority of society and elites as having divergent interests and propose that unless citizens are active and engaged change will be limited or tokenistic.

Embedded within the theory of participation is the idea that the majority of individuals are disempowered because of their willingness to cooperate with elites who disempower them. As outlined in Chapter 3, this is the expression of power and control within governmental programs to shape individuals, with which they willingly comply. However, the continuation of this system is fragile. If people act as a collective contrary to what is expected of them, they have the power to facilitate change, to confront power and to resist the control exerted. The foundation of action, therefore, is grassroots activity: education, awareness building, mobilization, training, capacity building, and inclusive participation (Stachowiack, 2009; 2013). The collective power of citizen action and engagement has the ability to effectively change governments, policies and programs, as history attests (Chenoweth and Stephan, 2011; Piven and Cloward, 1977). An example Acemoglu and Robinson (2012: 457) provide is Brazil, where inclusive institutions did not emerge as a result of planned governmental development activity, or government-driven policy, or a “natural outcome of modernization.” Rather, it was individuals and groups within society that advocated for change.

After surveying the history of how inclusive institutions emerged, Acemoglu and Robinson (2012: 458) conclude: “What is common among the political revolutions that successfully paved the way for more inclusive institutions... is that they succeeded in empowering a fairly broad cross-section of society. Pluralism, the cornerstone of inclusive political institutions, requires political power to be widely held in society” (Acemoglu and Robinson, 2012: 458). As mentioned in Chapter 3, the World Bank has also begun to recognize the important value of broad based participation and advocates for its

integration in programming (Devarajan and Khemani, 2016). As a means to more democratic, appropriate and effective systems, numerous development scholars advocate for this bottom-up approach (Dwyer, 2015; Eyben, 2014; Roy et al, 2016).

For Alinsky, however, participation was not simply a theory of change or an effective means to achieve an objective. Alinsky argued that participation is about dignity and rights. He states:

when we respect the dignity of the people, that they cannot be denied the elementary right to participate fully in the solutions to their own problems. Self-respect arises only out of people who play an active role in solving their own crises and who are not helpless, passive, puppet-like recipients of private or public services. To give people help, while denying them a significant part in the action, contributes nothing to the development of the individual. In the deepest sense it is not giving but taking – taking their dignity. Denial of the opportunity for participation is the denial of human dignity and democracy (Alinsky, 1971: 123).

In doing so Alinsky repositions participation. Participation may be an effective means for change, but more importantly it is a process of ensuring the dignity and rights of all are respected and protected, without which democratic processes are impossible.

I am in agreement with Alinsky on the positioning of participation as a right, and with the broader literature in claiming that it has the potential to be a means for change. As well, there is a growing list of people advocating for greater emphasis in grassroots, participatory civil society activity (Dwyer, 2015; Eyben, 2014; Roy et al, 2016). Yet, in this wave of enthusiasm there is a neglect of the potential for civil society to entrench social differentiation or to be unable or ineffective to force change. Ndegwa (1996) expresses this as the ‘two faces’ of civil society. Drawing upon case studies from Kenya, he concludes that there is “nothing inherent about civil society organizations that makes them opponents of authoritarianism and proponents of democracy” (1996: 6). Civil society cannot, he writes, “be assumed to be congenial to or supportive of democratic pluralism by its mere existence, expansion or level of activity” (1996: 7). Ndegwa focused

upon national NGOs. However, I believe this is analogous to a broad array of collective action activities – be they international or community-based, formal or informal.

Consider an example of civil society-driven activity from Ethiopia, which Alex Evans suggested to be one of the most successful and transformational development projects he has come across: self-help groups providing services such as collective buying, savings and lending (Evans, 2015). While I do not oppose the activity, it is noteworthy that it was done by church-based groups supported by an international Christian evangelical organization, operating in a country where non-Christians were excluded from participating in government until relatively recently, faced restrictions on owning land in parts of the country, and were regularly discriminated against (Ahmad, 2000; Feyissa and Lawrence, 2014). This example provides insight into the ways in which participation and collective action are shaped by existing networks of social capital (Fukuyama, 2001; Putnam, 1995). Worthy of note is that networks of social capital are influenced by a range of factors, such as gender, age, ethnicity, language, health-status, and ability. What is insufficiently taken into account in the promotion of participation is the extent, modalities and distribution of participation as it encounters diverse networks of social capital, as well as power relations within and between individuals and networks.

Participation is also limited or enabled by institutional factors. In this study the degree to which long-term participation was enabled and facilitated was restricted by available resources and time. Particularly problematic gaining access to information, which is compounded by a lack of communication options and low levels of literacy. These challenges are not insurmountable; I could have found solutions, such as presenting content in audio or video formats via an information booth run by solar power. Kiosk-style information technology of this nature has been successfully piloted in rural areas (Kendall and Singh, 2012), but that was beyond the resource capacity and timescale of this research project. Less costly initiatives could also have been piloted, such as posting results on community information boards, but was not. The result was that the awareness raising component that functions as the basis of change was limited to in-process activities outlined in the research methodology. New connections were developed between community members and community-level workers with faculty at Wolaita Sodo

University and with Zonal Administrators. However, the impact of these relationships is expected to be low, due to barriers of distance and connectivity. This chapter reflects on what was learned about the participatory methodologies used, considering these limitations, while aware that many alternative options existed that could have strengthened citizen-driven action.

Chapter 5 outlined how the participatory, co-produced data collection tools of this project resulted in entirely new areas of research being identified. Baumgartner and Jones (1993) suggest that the emergence of new knowledge, and the reframing or problematizing of existing challenges, are key processes in expanding interest in an issue and facilitate engagement with it. Stachowiack (2009, 2013) also includes increased awareness, agreement and involvement in her framework on grassroots change enablers. Reflecting on the enablers identified by Baumgartner and Jones (1993) and Stachowiack (2009, 2013), this research process contributed to strengthening and shifting social norms. However, as outlined by Stachowiack (2009, 2013) there also needs to be an increased sense of power and a strengthened capacity to engage with decision makers. These latter aspects of the theory of change were not directly supported by the research process, and therefore pose a significant limitation with regard to creating an enabling environment.

Returning to the research question: Can a participatory and community-based assessment of vulnerability to food insecurity facilitate the improvement of agricultural extension services? While the potential exists for this to happen, and practical examples are indicative of the possibilities, the lack of independently pursued engagement outside of research activities as well as the apparent limited timeframe of interest, indicate this process had a limited impact on rural programs and services. This research was primarily an academic endeavor not designed to empower community members, and it remains unclear to what extent enhanced (recognition of) power was required. However, there are indications that the knowledge of collective power and the opportunities for engagement are already known within Wolaita.

During the early 1990s governmental authorities supported an idea of amalgamating four distinct languages into one that would be taught in the public school system. The language of Wolaita was one. There is very little published information available about

the history of these incidents: Rahmato (2007) offers only a few lines, and Smith (2008) draws upon the incidents in exploring the role of ethnolinguistic identity. Based on these reports, the struggle for local language instruction within primary schools was won in 1991, with the downfall of the Derg and a policy put forward by the new Ministry of Education. Following early implementation of the policy, however, the government experienced significant challenges of translation and capacity, as there are more than seventy distinct languages in Ethiopia. Shortly thereafter, possibly during the first year of implementation in Wolaita, the government proposed the idea of creating a new language (Wagagoda) that would be taught in schools wherein four different languages were spoken as first languages. The idea was immediately opposed as an affront to linguistic, socio-cultural and historical identities. Over time, the activism opposing the language policy continued and expanded in scale. In 1999 there were large, violent protests in the regional town of Sodo. At one large protest police fired on protesters, killing at least ten, and arresting more than a thousand (Smith, 2008). The persistence of collective action, however, prevailed. The proposed policy was withdrawn and these linguistically driven protests were key to the creation of new administrative boundaries, including that of Wolaita Zone (Rahmato, 2007).

As the language policy case demonstrates, collective power and civil action have been used, and have been effective. Thus, a second question arises: are participatory theories of change the most suitable and appropriate for change to rural agricultural programs and services? In order to answer this question, at least theoretically, the following section will present a selection of theories of change in order to compare the environments in which they function. I offer reflections on these theories as they relate to Wolaita, this research project and the objective of improving rural programs and services.

8.2 THEORIZING CHANGE

Change can occur in many ways (Stachowiack, 2009; 2013). Rather than seek a generalizable theory of change that appears most accurate, the history of change suggests that a more appropriate approach would be to conduct an in-depth assessment of the context in which the desired change exists and determine the most relevant and appropriate theory of change for the specific context and objectives. In this work, a participatory-driven theory of change was embedded within my own assumptions about how change can occur. This positioning was largely based on my view of participation as a right, but less about how change to rural agricultural policies within Wolaita is most likely to occur.

Understanding theories about change is important because theories often link “description with prescription” (Wolf-Powers, 2014: 202). For example, in describing participatory methodologies as enabling collective action, the description of the methodology has assumed the means through which change is expected to occur. This can result in what Chambers calls a ‘lock-in’, a “paradigmatic syndrome in which there is strong mutually-supporting inflexibility” (2012b: 195). Chambers argues that “concepts, principles, methods, behaviors, relationships and mindsets” (2012b: 196) exist within a particular paradigm and reinforce one another so that minor changes within one area do not challenge the driving paradigm. In these instances, the dominant paradigm is not critically challenged because it is assumed within the description of the methodology and process.

Stachowiack (2009, 2013) outlined ten ‘pathways for change’ based on theories about how change happens, focusing largely on advocacy and policy efforts. Using these works as a starting point, in this section I reflect on potential theories of change that may be well suited for planning, enacting and explaining positive change in rural agricultural programs and services. I have grouped theories of change, as outlined by Stachowiack (2009; 2013), into three broad categories (situational, elite and targeted). This is not an exhaustive analysis of all theories of change, but merely a selection of those that highlight

processes of change. The theories explored below are also those that I find provide the most valuable insight into the enablers and barriers of change, and I reflect on lessons learned about the methodology in the process.

Situational

New evidence or knowledge does not necessarily result in change; nor does extended and robust advocacy. Kingdon (1984) suggested there are situational windows within which change can occur, which is somewhat similar to what Acemoglu and Robinson (2012) call critical junctures. The factors Kingdon identified were largely taken up by Baumgartner and Jones (1993), who used them to explain how change happens based on the coalescing of conditions. The conditions required in the work of Kingdon (1984) and Baumgartner and Jones (1993) include redefining or reframing an issue so that it gains newfound attention, involves new stakeholder groups, and increases levels of media coverage and public attention. Both theories require that a combination of factors come together to create the right environment for change. These theories also include components that can be facilitated but tend to converge in unplanned ways, opening emergent, time-bound opportunities for change. While Baumgartner and Jones (1993) help to explain why change occurs in sudden shifts, akin to the evolutionary punctuated equilibrium model that inspired it, the theory has largely been used to analyze American policy change and may have limited explanatory strength in other socio-political contexts. Kingdon also relied heavily upon the American context in presenting this theory, which includes free media and responsive institutions, suggesting that it would need to be adjusted to suit different national environments.

A second potential reason of situational change emerges from the work of Turner (Turner, 1982; Turner and Oakes, 1986; Turner et al, 1987), who highlighted the foundations of group formation necessary for collective action, the latter involving cohesion and cooperation. While there is a high degree of ethnic, linguistic and religious cohesion and cooperation in the study communities, this is not the case for class or experience of rural programs and services. Thus, unlike the language policy that affected

everyone in similar ways and could build upon existing ethnic, linguistic and religious cohesion for cooperative action, rural programs and services are not equally (in)effective. The use of participatory collective action as an approach for this study was built on an assumption of collective interest in the issue, which proved inaccurate. It is therefore possible that for collective action to occur, formative work would need to build solidarity across socio-economic classes. These theories, however, do not address the highly political and politicized nature of rural programs.

Elite

The origin of thinking about elite power in theories of change began with Mills (1956), and has since been incorporated into a range of theories. These theories of change are founded on the idea that power is unequally distributed in society, and as a result certain people have a greater ability to enact or prevent change. In direct contrast to the participatory, community-based theories of change, those that focus on elite power advocate that efforts for change focus on a limited, targeted set of individuals. Ethiopian history attests to the importance of elite power theories, particularly as they relate to politically driven rural agricultural change. McCann outlines how the introduction of plow agriculture in Kaffa in the seventeenth century was “a result of the royal court’s preference for the prestige value of teff and cereals over *qocho* (ensete), yams, and taro, spurring elites to require tributes in cereals” (1995: 47). Similarly, the changing of a mixed coffee and maize agricultural system in Gera in from 1850 to 1990 was partly environmental “but [derived] more from policies in the political arena – fixed coffee prices, land reform, and villagization – which projected state power and urban priorities onto the rural landscape” (McCann, 1995: 190). At the same time, however, McCann also provides examples of rural agricultural change occurring outside of elite power and politics, such as the rapid expansion of the traditional plow (*marasha*) “reaching peoples of the southern and eastern highlands well before Emperor Menilek II’s conquering armies of the late nineteenth century” (McCann, 1995: 5). While essential to consider, these historical examples ought not give the impression that rural, agricultural change is

primarily the product of elite power and politics. Rather, it is one means by which change has occurred in the past, and may in the future.

One approach that seeks to understand the distribution of power in society for assessing how change might occur is the Power Analysis approach, developed by the Swedish International Development Agency (SIDA). The underlying belief of this approach is that power asymmetries are crucial in understanding and facilitating change (Nash, Hudson and Luttrell, 2006). The Power Analysis approach tends to highlight the connections between governance, human rights and poverty “through analysis of informal and formal power actors, structures and relations” (OECD, 2005:3). Each use of the Power Analysis approach uniquely defines power, being shaped by the needs and context. According to Hyden, Power Analysis “is a valuable complement to other types of analysis by placing policy in its rightful political context” (2005:1). SIDA does this by posing three questions: Who sets the policy agenda? Who gets what, when, and how? Who knows whom, why and how? As outlined by Hyden (2005), these questions respectively evaluate the decision making environment, the formal institutional arrangement and informal power relations (Vaughan and Tronvoll, 2003). Although its focus on power is unique, SIDA concluded that in practice many outcomes of the Power Analysis approach were not as distinctive as originally hoped (SIDA, 2005).

An alternative approach to the participatory theory of change utilized for this study could have focused on educational, advocacy and sustained information exchange with a select few powerful decision makers. In the case of rural programs and services, this would consist of decision makers at multiple levels: local (community chairman and development agents), district (district agricultural office), zonal (zonal administration and zonal agricultural office) and regional (regional agricultural bureau). From one perspective, this approach is practical and pragmatic as it directly engages with those who have the ability to make changes to program and service design and implementation. Yet, it assumes these decisions are being made only for the benefit of rural residents. Berhanu and Poulton (2014) argue that there are ‘twin imperatives’ at work in these programs, and at times decisions are made to entrench control and strengthen elite power. The politicization of rural programs and services has been identified in agricultural extension

(Berhanu and Poulton, 2014), in land reform (Chingo, 2013) and in the safety net (Cochrane and Tamiru, 2016). This suggests elite power advocacy may have limited impact because decisions are made to serve a different objective.

Politicization aside, the challenge with elite power theories of change is that they are reliant upon the identification of the correct individuals who are then targeted for tailored and sustained advocacy for each desired change. While this approach has the potential to be effective, it is limited in scope. In contrast, if the cultivation of critical consciousness (Freire, 1970) is utilized to shape more inclusive political and economic systems, the activity can be sustained and transformative as it can be applied to new contexts by individuals and communities as they see fit. It is possible to combine the activities outlined in the participatory and elite power theories; thinking about what to combine in these two theories and how to go about that (considering limitations of capacity, resources and time) has caused the emergence of several new theories, which I have grouped together under the theme of targeted theories of change.

Targeted

One way to bring together the strengths of participatory and elite power theories is to build a coalition of diverse stakeholder groups, each with different activities, coordinated to achieve a specific change. Coalition thinking has been developed by Sabatier and Jenkins-Smith (Sabatier, 1988; Sabatier and Jenkins-Smith 1993; 1999). Rather than focus on specific activities, this theory of change relies upon the alignment of core beliefs and objectives – thus ‘unlikely allies’ emerge to work together to effect positive change. In order to establish and maintain the alignment of beliefs and objectives there may be a need for a different type of engagement, one that coordinates and brokers between and within organizations (Weible and Sabatier, 2006).

Coalition building for improving agricultural programs and services could align strong international research agencies (e.g. International Food Policy Research Institute), national research agencies (e.g. Agricultural Transformation Agency), non-governmental

research bodies (e.g. Forum for Social Studies), key donors and finance agencies (USAID, DFID, World Bank), implementing agencies (e.g. One Acre Fund and Concern), and community-based organizations (e.g. Wolaita Development Association and Terepeza Development Association). Building upon work by Stone (1993), in certain contexts coalition building may only influence change if the work is done collectively with the government agencies, which would include the Federal Ministry of Agriculture, the Regional Agricultural Bureau, Zonal Agricultural Office and District Agricultural Office. This may be a project worth pursuing, but it is beyond the capacity of a single researcher to undertake. My experience working with multi-stakeholder initiatives in Ethiopia is that often the government partners inadequately engage with the process, resulting in parallel activities, with little governmental response to coalitions of non-governmental and community-based alliances. While I have developed networks for dissemination and have also identified stakeholders to influence, coalition building does not appear to be an effective means for change in rural programs and services due to the (often confrontational) divide between governmental and non-governmental decision makers.

If governments are not interested to participate in, or respond to, coalitions it may require approaching the issue from a different perspective. Kahneman and Tversky (1979; Tversky and Kahneman, 1981; 992) argue that individuals do not make rational decisions, but rather decisions are made based on how issues are framed. Issues can be presented and framed in diverse ways and this affects how people respond to them, such as the divergent framing of the resettlement program in Ethiopia (Cochrane and Skjerdal, 2015). Influencing change, therefore, is not necessarily driven by coalitions or advocacy, but, building on the works of Kahneman and Tversky, a matter of strategic framing and appropriate presentation.

Assuming that decision makers in the Ethiopian government are at least partially driven by the objective to entrench rural control, one could strategically frame issues such that they (at least appear to) align with the political objectives. This would turn the ‘twin imperatives’ (Berhanu and Poulton, 2014) around, using the allure of politicization and power to affect positive change. For the sake of clarity, Kahneman and Tversky do not advocate the manipulation of decision makers in this fashion, rather they outline how

framing influences decision making, as opposed to ‘rational’ assessments of benefits and costs. Non-governmental organizations regularly reframe activities for the purposes of appeasing the government (or altering the appearance of activities that it would not welcome). For example, the Government of Ethiopia heavily regulates NGO reporting, advocacy and programming on human rights. As a result, organizations simply reframe human rights as wellbeing.

For the purposes of affecting positive change in rural settings to agricultural programs and services, I believe that reframing would have limited impact because the decision makers are well aware of the reasons they make choices. For example, one government worker, a community chairman, openly said that despite knowing the requirements of the program and the rights of beneficiaries, community members have “no right” to question or speak about who gets benefits from the government and who does not (Cochrane and Tamiru, 2016). For individuals such as these, it is not a matter of reframing the reason why structures such as the appeals committee within the safety net program exists. He is well aware why it exists and well aware why he does not implement it. Since the reasoning is well known (but unwritten and therefore invisible), the potential for change driven by reframing appears limited.

In addition to theories of change, there have been methodologies developed to best determine what action ought to take place to enable or enact change. One example is the Theory of Change method (hereafter ToC), developed at the Aspen Institute. The ToC is a participatory process in which members involved in the planning process define their long-term objectives, and work backwards to outline the relevant processes and conditions (Taplin and Clark, 2012). Change is conceptualized by analyzing the short-, medium- and long-term outcomes, and the linkages between them (Taplin and Rasic, 2012; Taplin et al, 2013). When it was first proposed in the early 1990s, the ToC methodology challenged practitioners to critically reflect about their assumptions of which activities are prioritized and why (Weiss, 1995). The approach does not specify how change occurs, but it provides reasoning for how those involved assume change can occur. While this approach offers unique insight, it is largely based on the ideas, experiences and assumptions of the participants involved. Where the ToC aligns with the

theories explored above is that they assume the most effective pathways for change are identifiable and activities can be planned accordingly. This is an example of the ‘planner’ model identified by Easterly (2006).

This brief survey of theories and methods of change has identified reasons why the participatory approach may not have worked and also fruitful arenas for future action. Engaging in this process has enabled me to critically reflect on my own assumptions and the limitations of my research, both as a participatory approach to enable collective action and as one approach to change among many. At the same time, however, the theories of change replicate the ways in which complex lived realities are made invisible by generalizations, models and averages. The concluding section of this chapter explores a different model, what Easterly called a ‘searcher’ approach, and specifically what complexity theories offer to better understand why change happens and how intentional positive change might be enabled.

8.3 REFLECTIONS

There is a clear need to strengthen rural food security by reducing vulnerabilities and ensuring rights are protected. Current trends suggest that the situation will worsen due to population growth and land fragmentation, increasingly unpredictable rainfall, depleting soil fertility, and soil loss due to erosion (Meijer et al., 2015). This research has made the case that rural livelihoods are complex. The way in which we conduct and analyze research renders invisible much of the lived realities that farmers experience. Theories of change similarly make assumptions and generalizations, and thus there appears to be a role for complexity-based analyses, learning approaches and adaptive management.

The recognition that objects of study exist within interconnected, non-linear and dynamic systems has a deep history in philosophy and economics, but began to influence the research process and enable the development of new theories in the early 1900s (von Bertalanffy, 1972). In recent decades complexity-based approaches have influenced a

broader range of issues, including those within development studies (Meadows et al., 1974; Meadows, 2008). Such frameworks offer an alternative to understand change: rather than a function of grassroots activity, elite power or targeted activity, inquiry and action are based upon assessing dynamic interactions and interconnected relationships within a complex adaptive system.

The complexity of change is demonstrated in a study conducted by Wubeneh and Sanders (2006), who found that primary change factors differed based on the changes advocated. While access to information, soil type, farmer perceptions and rainfall risk influenced the adoption of new varieties, the availability of labor, farm size, manure use and soil type were also important in fertilizer adoption. These findings suggest that theories of change will be insufficient as different processes influence different types of change. A unique analysis done by Ersado et al. (2004) suggests that non-agricultural factors, such as time spent ill, caring for the ill and problems associated with access to healthcare significantly, and negatively, influence the adoption of agricultural practices. Further, Ersado et al. (2004) find that some agricultural innovations, such as micro-dams, may decrease adoption of new technologies as it increases health challenges (such as malaria) and reduces availability of time due to illness. Alternatively, Segers et al (2008) find that the level of engagement with one program, and its lack of effectiveness, may be unrelated to that intervention entirely, but due to a completely different, concurrent activity. These diverse factors tend not to be considered as linked, and if they are considered, analysts often apply the theories of change generally, rather than on a case by case basis. Even more challenging, yet often unaddressed in studies, is how advocacy for change by different governmental and non-governmental agencies can be contradictory, and yet seek to influence the same households. Ahmed (2015) highlights how this is the case in Ethiopia with the promotion of chemical inputs and certified seed in contrast with natural resource management practices rooted in agroecology using natural manures and composts.

It is often in participatory studies that these binaries, commonly driven by moral positions advocated in opposition to the other, are challenged. Laekemariam and Gidago (2012), for example, in a study of Wolaita, find that the highest yields occurred when farmers

mixed natural and chemical systems – as opposed to relying exclusively on either. The authors do not specify how different options were decided upon, but one wonders if this was influenced by pre-research farmer-led experimentation, as has been identified in other locations as farmers respond to externally-advocated change (Cochrane, 2017b). Farmer-led experimentation of this nature is common, such as for potato planting, with farmers planting above and below the government recommendations for row spacing (Abrha, Belew and Woldegiorgis, 2014). It can be more effective, particularly in ensuring appropriateness to specific contexts (Biazin, Sterk and Temesgen, 2014; Waters-Bayer et al, 2015).

In addition to advocacy driven by moral positionality, there are a host of assumptions brought into rural agricultural development that contest the knowledge obtained through farmer-led experimentation. While in Amhara Regional State in 2013 I asked an extension worker why the fields in one particular area contained so many rocks. The answer alluded to the laziness of farmers and their unwillingness to follow guidance given by extension workers. Fortunately, there are innovative researchers such as Jan Nyssen who has led a wide range of studies looking into agricultural practices, often contrasting traditional practices with those advocated by extension services. One of those studies included comparing plots with different levels of rock fragments. It found that the presence of rocks reduced soil loss, and concluded that one ought to rely upon farmers' experience as a key source of knowledge (Nyssen et al, 2001). McCann (1995) notes how traditional storage systems are not only effective, but have added advantages of secrecy to prevent raiding during times of unrest. At the same time, however, McCann (1995) provides examples of how traditional practices, such as the use of fallows or burning, became less viable due to demographic and environmental changes. These studies highlight how complexity requires knowledge well beyond scientific studies. Research must be informed by objectives that are situated within the needs of the locality (e.g. marginal yield increases or soil conservation) and that assumptions must be regularly challenged and questioned.

Ramalingam (2013) is one of the most influential advocates of complexity-based analyses of development. In making a case for complexity, Ramalingam identifies examples where

it is evident, such as the Balinese agricultural terracing systems. Research conducted by Lansing et al (2006) identified that external development agencies aimed to ‘modernize’ the Balinese system, but instead caused a complete failure. This work identified that assessments failed to recognize the interconnected nature of the broader system. Drawing upon such examples, Ramalingam (2013) makes a strong case for the importance of thinking about actors and objects as existing within complex adaptive systems. But in doing so, he offers few options for the practical implementation of the idea. For example, it is not clear how much needs to be known in order to sufficiently understand the dynamics of non-linear systems, which are themselves embedded within layers of uncertainties (Levy, 2000). Meijer et al (2015) attempted to develop a framework for agricultural adoption, and concluded “it is almost impossible to understand the influence of all possible factors involved as well as their interdependencies” (Meijer et al., 2015: 11). Thus, learning approaches and adaptive management systems have been developing in response to the challenges of how to practically utilize complexity-based approaches (Burns and Worsley, 2015).

As opposed to researching systems to understand their complexity, learning approaches and adaptive management systems seek to operate in an iterative way, whereby the interactions and interconnections within the system continuously inform how activity is conducted. Burns and Worsley (2015) provide examples of how this operates in practice, and USAID (2016) has developed resources for adaptive management for the entire program cycle. In reflecting on theories of change, the learning approaches and adaptive management systems offer an alternative to the plan- and theory-based models that predetermine which forms of action ought to be prioritized. Effective use of these alternatives requires different modalities of funding and design, whereby there is greater flexibility in adapting the program as it evolves (Burns and Worsley, 2015). This is one potential space where practice-based activities, either led by innovative organizations or through action research approaches, could provide new insight into more effective programming, or, as in the case of Power Analysis, if the results are not as innovative and distinct as hoped.

Having presented the findings of this research, the following chapter reflects on the results presented throughout this work in order to highlight key knowledge gaps and areas for future research. While this study does not claim to offer an authoritative final word on what ought and ought not be done, Chapter 9 also includes a section that outlines recommendations made in the areas of governance, developing appropriate and effective programs and services, infrastructure, finance and the private sector. The recommendations reflect the key findings of this research and are offered as a contribution to the broader discussion about how food security can be strengthened in rural, southern Ethiopia.

Returning to this implementation of the Stages of Food Security methodology, there were clear successes and challenges. The co-production process, particularly the co-creation of data collection tools and the co-analysis of results, resulted in unique research directions that added significant value to the project. Community members who participated in the process were not simply conveying information to an outsider, but were also co-learners in the process. Much emerged about their own communities, communities in their surrounding area, and the nation as a whole that enabled for two-way learning. The scale of the involvement, however, was limited. This collaborative process was not one that everyone participated in, and as such the impact of this learning was not community-wide, but for a specific group of individuals.

I began this process with a set of assumptions about participation. One of these is that I view participation as a right. That position, however, does not equate with the most effective means for enacting change. Unlike the language policy, rural programs and services are not experienced in the same way by everyone. Thus, there was a challenge of creating solidarity, particularly across socio-economic groups, which would facilitate broader collective action. Furthermore, some individuals within the community benefit from the ways in which programs and services are currently offered, creating another layer of division. This chapter explored the question of change from a different perspective: rather than what is the most appropriate way to do research, it grappled with the question of how best to change rural programs and services. In reflecting upon my experience of this methodology, it may not serve all the objectives hoped of it. The

research process was greatly enhanced by the processes undertaken, but, at least in this case, a different methodology may be required for facilitating change.

CHAPTER 9. CONCLUSION

This concluding chapter consists of three main sections, and ends with some brief reflections. The first part summarizes key findings of the research, with specific attention to the three primary research questions that framed the project. The second section outlines recommendations or options – I have opted to use the latter as options are better aligned with what is presented than specific, prioritized, actionable and evidence-based recommendations. The third part presents reflections to the research community: having spent almost four years reading the literature, working with organizations and conducting research, I have identified key areas in which additional research is needed. I have set about to outline some of the crucial knowledge gaps that future research projects need to address and where significant contributions could be made.

9.1 FINDINGS

This research project was driven by three research questions: (1) what makes households vulnerable to food insecurity, (2) why does the literature indicate that levels of service and program adoption are low, and (3) can a participatory, co-produced research approach facilitate positive change in programs and services? Answering these questions has involved incorporating and integrating research and data from broad areas – health, education, migration, agroecology, politics, to name just a few. This section of the concluding chapter returns to each of these three primary questions and summarizes key findings.

Vulnerability to food insecurity in southern Ethiopia, and specifically in the areas of Wolaita Zone wherein this research was conducted, cannot be measured by a simple set

of metrics. Many measures can be expressions of both vulnerability and strength, and require detailed context to be understood in relation to food security. For example, crop diversity and migration are both areas that this research demonstrated can be expressions of strength and vulnerability – singular metrics would provide aggregated averages but make invisible the important differences. Across the three communities, however, the confluence of multiple challenges signaled vulnerability to food insecurity. Depending upon the context this may include a lack of labor, land and livestock, but may also include other limited resources, such as technical skills for employment. In comparing the three communities, it was clear that access to irrigation infrastructure played a key role, and one that stood out as having a significant impact on the long-term strengthening food security status at the community level. While other geospatial differences were important (e.g. access to markets) and reduced specific vulnerabilities, they were less transformative than irrigation infrastructure.

The available literature suggests that adoption of programs and services is low, with a relatively high discontinuation rate. This research found that generalized conclusions such as these are difficult to draw, and at best reflect the packaged approach taken by the government. Specific adoptions of components of the packages are widespread, such as the utilization of fertilizer and improved seed. However, even for these components, generalizations cannot be made. Fertilizer may be consistently used for some crops and not for others, traditional seed may be used for certain crops and improved seed for others. Farmers make informed and purposeful choices. The relatively high level of success with fertilizer and improved seed is contrasted with the low adoption of agricultural extension services and microcredit, both of which consistently failed to meet the needs of the most food insecure households, and in the case of microcredit was almost entirely unused. The reasons for failure include inappropriate design, ineffective solution, inconsistent delivery, and exclusion of those most in need, to name a few. In some regards, therefore, this research provides a counter narrative to the literature, but largely it challenges the methods of assessing effectiveness – that many of the important choices farmers make are made invisible when they are asked to provide a single answer that is generalizable for an entire package of agricultural programs and services.

The third research question asked if a participatory, co-produced methodology might enable positive change. The approach resulted in important research findings and asked unique, appropriate and specific questions with relevant metrics, ones that a non-participatory and researcher produced-process would not have arrived at. It is less clear to what extent the process itself enabled positive change – the impact was unlikely to emerge during the research process and follow-up evaluations were not included. An immediate benefit of this methodology was that relevant and important questions were asked, using appropriate metrics. The engaged process enabled new, unplanned and emergent areas of research to be pursued and integrated into the process. Furthermore, in exploring how change happens, the literature suggests that this approach may require some additional activities, if changes to policies and programs are to result from collective or community-based activity. Additionally, further work is required to ensure more permanent actors are integrated into participatory processes so that the engagement can be sustained beyond time-specific research projects.

In his exhaustive study of food security, Gibson (2012) identified a number of key knowledge gaps. This research, and its three primary research questions, have sought to address these. The first is on the need “to better understand how people prioritize their goals and objectives in relation to food security” (2012: 505). This study provides data on how individuals experiencing food insecurity assess their own situation and prioritize activities for strengthening food security. While the specific findings are localized, the results also address systems and institutions and can be applied more generally. This leads to a second knowledge gap identified by Gibson, which is to “improve the proxy method of determining food security... perhaps using more qualitative data such as community surveys” (Gibson, 2012: 504). In this regard, a mixed methods approach used new measures and new metrics, and included broader assessments that are not typically included in food security studies. In addition to contributing to the Ethiopian discourse, this research provides a model for other researchers as to how different proxies and metrics can be identified and the potential new knowledge that may be gleaned thereby. The third knowledge gap identified by Gibson and addressed by this research is “indicator methodologies” (2012: 504). As outlined in Chapter 5, a new participatory and co-produced methodology – Stages of Food Security – was developed to facilitate

inclusive participation, which led to the identification of appropriate questions, measures and metrics. This in turn enables policies, programs and services to align the needs and priorities of specific challenges and opportunities, as opposed to replicating and scaling out programs that may have been effective in other settings or have the theoretical potential to be effective.

9.2 OPTIONS / RECOMMENDATIONS

This dissertation does not present a recipe for how food security in southern Ethiopia can be strengthened. The challenges are far too complex to be remedied by a single study. However, this section attempts to bring together what is known, by means of this study and in the broader literature, in order to make recommendations (or provide an exploration of options) that would support the aim of strengthening food security in southern Ethiopia. Some of the recommendations are specific, such as adjustments to existing programs and services, while others are broader and require systemic change, such as reforming modalities of governance. The recommendations are clustered into five themes. The first covers recommendations related to governance, and specifically the potential consequences of a continuation of the status quo compared to the opportunities afforded by more inclusive systems. The second theme outlines recommendations for making programs and services more appropriate, efficient and effective, and draws largely from Chapters 6 and 7. The third theme addresses infrastructure, with a focus on water. The last two themes cover issues related to finance and the private sector.

The objective of this section is to present options for discussion. These ideas are presented as a means to summarize the key findings in the form of potential opportunities, as opposed to simply identifying challenges. In writing this section, I realize the limitations of my own knowledge as well as the difficulties that decision makers are faced with due to resource constraints and competing priorities. However, I am also cognizant of the violations of human rights that necessitate action and therefore I avoid focusing on only

that which is practical and politically palatable. Lastly, I recognize that each of these options / recommendations requires an in-depth analysis of how such a change might occur. That, however, is beyond the scope of the current analysis.

Governance

For decades Ethiopia has been one of the largest recipients of international development aid (Feyissa, 2011; OECD – DAC, 2016). During this period, however, concerns have consistently been expressed about ethnic-based favoritism and party-affiliated patronage that have marginalized, excluded and disenfranchised significant portions of the population. For those who attempt to voice their concerns, join opposition parties or use their constitutional rights to challenge authority, the direct consequences include brutality and imprisonment, and the indirect penalties include lost government jobs, services and goods. Although widespread protests have erupted throughout the country in recent years, this form of governing is not new (de Waal, 2015); it is the consequence of decades of rule in this fashion.

Poor governance affects food security. In his tome on food security, Gibson offers recommendations that are explicitly political, including: the need for a more “responsible institutional policy” (2012: 503); the need to support “democracy as this promotes a conducive social infrastructure that further facilitates food security” (2012: 503); and, to the desirability of “establish[ing] stable democracies or at least political stability where economic and social goals can take root and grow” (2012: 500). Sundaram (2016: 42) argues that the “promotion of participation, inclusion and voice of poor people is crucial to overcoming some of the political and structural determinants of poverty and its perpetuation.” The research presented in this study demonstrates how governance systems that systematically exclude citizen participation result in programs and services that are ineffective in strengthening food security. Inclusive political and economic systems are also necessary for ensuring that feedback mechanisms exist and a broader sense of public ownership is fostered. These are laudable objectives. Inclusive systems

have far more systemic justifications, including the basic human rights associated with political engagement, of which strengthened food security is one positive outcome.

Political and economic systems driven by ethnic differentiation that empower a minority through the marginalization of others are not stable (Acemoglu and Robinson, 2012). The most worrisome comparison that might be drawn is to Rwanda in the early 1990s, which when described by Uvin (1999) resembles that of present Ethiopia. The simmering socio-cultural and political inequalities have generated mass collective action along with increasing inequality, insecurity and vulnerability. Ethiopia is akin to pre-1994 Rwanda, with its ethnic, political, religious and regional protests continuing to emerge, yet few international agencies, donors and (I)NGOs have changed their modus operandi. The experience of the Rwandan genocide as a lived memory ought to push external stakeholders to be more courageous, lest we look back and lament, as many have done about Rwanda, that nothing was done.

Food security is one facet of this broader governance challenge. Sen (1990) argued that famine does not occur in countries where there are diverse political freedoms. Food security is political, and we must view strengthening food security as political action. In the early 1990s almost “none of the foreign experts living and working in Rwanda expected the genocide to occur or did anything to stop it from happening” (Uvin, 1999: 2), and “the way development was defined, managed, and implemented was a crucial element in the creation and evolution of many of the processes that led to genocide” (Uvin, 1999: 3). This is because “the way development (aid) is defined and implemented interacts with processes of elite reproduction, social differentiation, political exclusion, and cultural change” (Uvin, 1999: 6). Undoubtedly, there have been significant improvements made in Ethiopia over the past two decades, yet these successes do not justify rule of this form. The ways that current programs and services operate in rural Ethiopia are entrenching elite power, marginalizing the poor, disincentivizing citizen participation and directly contributing to rising inequality. The lines drawn by these divisions are ethnic, religious and political. Donor governments are enabling and facilitating these actions, as they did in Rwanda. The resulting recommendation is for a radical reformation of how we engage in international and humanitarian assistance.

Acemoglu and Robinson criticize the cycles of failed foreign assistance as follows:

The idea that rich Western countries should provide large amounts of “developmental aid” in order to solve the problem of poverty in sub-Saharan Africa, the Caribbean, Central America, and South Asia is based on an incorrect understanding of what causes poverty. Countries such as Afghanistan are poor because of their extractive institutions – which result in lack of property rights, law and order, or well-functioning legal systems and the stifling dominance of national and, more often, local elites over political and economic life. (Acemoglu and Robinson, 2012: 452-453)

However, this complaint offers little in the way of concrete action. Humanitarian crises emerge and donors are compelled to act. The call to thinking and working politically is not new; yet, it has been insufficiently heeded, and thus it is necessary to repeat it. All actors – from international donors and international agencies to (I)NGOs and community organizations – need to better situate themselves and their activities as occurring in broader political processes. This may result in principled withdrawals, a practice often practiced by Medecins sans Frontieres. It may also result in confronting governments and/or withholding funding. In practice, these actions are problematic as they may run counter to the 2005 Paris Declaration on Aid Effectiveness, which prioritizes recipient countries’ abilities to set their own strategies.

The theoretical foundations of this research rest on human rights, and I argue that decision making that navigates these development dilemmas ought to prioritize human rights. Farmer (2005: 229, emphasis original) forcefully argues this point: “It’s not acceptable for those of us fortunate enough to have ties to universities and other ‘resource-rich’ institutions to throw up our hands and bemoan the place-to-place complexity. Underlying this complexity are a series of very simple first principles regarding human rights... Our commitments, our loyalties, must be *primarily* to the poor and the vulnerable.” At the same time, I am also cognizant that, as de Waal has noted (2000), external humanitarian and development assistance can be an obstacle to the development of inclusive political and economic systems. In addition to utilizing human rights as a guide for decision making, I echo de Waal (1990: 23) in arguing that all

activities taking place within the sphere of international aid need to explicitly promote democratic governance and ensure that human rights are protected.

Thinking and acting politically, however, requires us to think well beyond political apparatuses. Social differentiation occurs beyond formal political and economic systems. And thus, as Uvin (1999) suggests, we may need to reconsider what developmental activities should be prioritized (or at least included). This may include peacebuilding and conflict resolution programs that would foster greater trust across divides in the socio-cultural sphere. Improvements in this regard will have direct impacts on food security, as well as on long-term stability and political and economic inclusivity. Wossen et al (2016) demonstrate that households with greater social capital are better able to overcome food insecurity challenges. As ethnic and religious divisions run deep in Ethiopia, the need for more inclusive political and economic institutions also requires more inclusive socio-cultural systems. Social networks based on ethnicity, religion and political affiliation may further entrench inequalities and inroads for inclusiveness are needed to foster change from the bottom-up.

Experts from conflict and peace studies may offer more specific recommendations on the way forward. One potential path emerging from the agricultural realm is research in rural Ethiopia concerning aspirations, which has shown that encountering new ideas can support behavior change (Bernard et al, 2014). Communication tools, such as telephone networks, radio scripts and television programs, may be relatively low-cost mechanisms to more explicitly promote social cohesion. Regionally tailored communications could address the specific challenges to counter commonly held assumptions and promote a greater sense of national unity. In making this recommendation, I am fully cognizant that ethnic and religious divisions have long existed, and in many ways are reinforced by administrative boundaries and language policies. The 'low hanging fruit' in rural development has an appeal of offering relatively low-cost and short-term results. But it is the nebulous and daunting tasks, such as enhancing social cohesion, that offer potential for more transformative and sustained change.

Appropriate and Efficient Services

The Sustainable Development Goals make explicit, more so than any other international objectives, the idea that success lies with serving the poorest, most marginalized, and difficult to reach individuals and communities. Consider the first two goals: Goal 1 states: “End poverty in all its forms everywhere” (UN, 2016: 1), and Goal 2 states: “End hunger, achieve food security and improved nutrition and promote sustainable agriculture” (UN, 2016: 1). This research has demonstrated that these goals cannot and will not be met by status quo programming – Cimadamore, Koehler and Pogge (2016) as well as Sundaram (2016) argue this is the case worldwide. While many of the ideas in the Sustainable Development Agenda are conducive to positive change, the design and implementation may further marginalize the poorest and increase inequality. Even programs that are designed to target the most food insecure can be implemented in a fashion that runs counter to their long-term objectives; achieving food security requires good governance that is supportive of inclusive political and economic systems. On multiple levels, rural agricultural programs are inappropriate and inefficient: those served by agricultural extension programs tend to be the relatively wealthy, the inputs and credit needed by the most food insecure are inaccessible to them due to cost and/or program design, and the safety net program stifles citizen engagement and entrenches elite power.

It is not the case that these rural agricultural programs are ineffective for everyone. The relatively food secure are gaining access to inputs, training and credit. They are also better positioned to take advantage of technology to obtain a greater share of the crop price when selling. Those with livestock to support transportation of goods to the market are able to sell directly, rather than to traders. The Ethiopian Commodity Exchange, agricultural extension services and microfinance institutes have facilitated these positive changes. The essential question that often goes unasked, however, is who is not benefiting from these programs and services and what impact this has upon them. The vulnerability that emerges from exclusion, as well as the benefits accrued from inclusion, has fostered increasing rural inequality. While income inequality has gained more attention, inequalities are multiple and have multiplying effects (ISSC, IDS and UNESCO, 2016). Seasonal malnutrition, seasonal absenteeism, school dropout, distress migration, access to

programs and services, and socio-cultural and political exclusion are all interconnected. Inequality runs much deeper and is much broader than simply a measure of income – both averaged as a figure of GDP and as a direct measure of individuals and their households. The recommendations that follow on improving programs and services do not only focus on the aggregate or the averages. I seek to offer recommendations that work toward more inclusive programs and services, as well as disproportionately benefiting the most food insecure and marginalized – what Gutierrez (1973; Farmer and Gutierrez, 2013) calls the preferential option for the poor, or what Chambers (1983) calls putting the last first.

At present, extension packages experience low rates of uptake and relatively high rates of discontinuation. This research found that some components were broadly used and identified a number of reasons why this is the case. Within the existing framework, the government could support the most food insecure farmers by reducing its emphasis on the promotion of package adoption and supporting a component-specific, demand-driven system for inputs. This, however, remains a theoretical option as the programs and services have ‘twin imperatives’ that are not limited to supporting food insecure households. Nonetheless, this shift would offer multiple benefits. The first is that the adoption rate, and therefore governmental success, would actually rise – as this research has shown it is specific components of packages that are not being adopted, not all components. Second, the government will be able to support farmer-led experimentation. Research presented in this dissertation demonstrates that farmer experimentation and traditional practices can be more efficient than government mandated practices, or can be practiced in combination with new inputs and methods, in unplanned ways. Innovations, such as the farmer-developed teff seed planter that enabled row planting is one example (Cochrane, 2017b), of many, that demonstrate the potential when farmers are supported to experiment and innovate, rather than be required to follow extension demands or face punishments. Third, the government could better target its programs and services in each region based upon farmer demand, making the program more cost-efficient as extension workers are not trained and forced to promote inputs and methods that farmers have no interest in. This would also act as a feedback mechanism for monitoring where programs and services are not functioning.

Shifting to a demand-driven model of agricultural extension components would require a significant overhaul of the agricultural extension program. There are other options that would improve the existing system, within its current operational modality. Farmers should not be required or forced to purchase inputs. This process is caused by regional-state and federal reporting requirements, which are creating unintended negative consequences. A change to the reporting system could improve this situation and reduce the pressure experienced by farmers. Microfinance repayment schedules need to be made more flexible, such that farmers who might experience less than ideal harvests would not face the loss of land because of such a debt. The development of public research in agriculture, via the regional research centers, has the potential to significantly support farmers. The choice of crop for which research is invested in can enable that research to strengthen food security for the most vulnerable, who, in Wolaita, tend to rely on root crops rather than cereals. Additional funding for research on these locally important crops, as was done with taro, has the potential to offer significant benefit. Furthermore, doing so via national institutions retains public ownership of innovations, avoiding complications associated with corporate control of seed and supply chains.

Beyond adjusting the modality of implementation, there is a need to rethink the purpose of agricultural extension services. In the past, the services were directed specifically at 'high potential' areas and for larger operations, such as state farms. While the objectives have changed, the modus operandi has not. Smallholder farmers are viewed as key to agricultural growth, but the design and implementation of the programs and services disproportionately benefit those with greater assets and land, thus entrenching the food insecure in a position of chronic food insecurity, or vulnerability to it. Exclusion of the poorest and most food insecure households from rural programs and services is experienced in nearly every facet of livelihoods: fertilizer access, seed access and therefore public research into seed breeding, access to extension support and therefore research on methodologies, credit access and resulting asset accumulation, new opportunities in livestock (poultry) and agriculture (fruit trees) due to financial options and opportunity costs, and poverty penalties for accessing healthcare and education.

Even with cereal promotions, research indicates that different crop yield increases benefit different segments of society: while a twelve to fourteen percent yield increase in teff offers the greatest benefit to urbanites, particularly urban poor, the economic benefits of a similar yield increase of maize are gained by rural residents (Benson, Engida and Thurlow, 2014). What crops the government invests in, therefore, directly affects who benefits. In Wolaita, cereals are not the most productive crop and many farmers prefer to grow root crops, which may yield over five times more than cereals. However, cereals have been prioritized in government supported research, training and input provision. In some parts of Ethiopia the governmental priority of cereal crops aligns with that of farmers, but in Wolaita it does not. Resources, research and support need to be realigned if rural food security is the objective, such as investing in agricultural research for enset. When this has been done, as it was for an improved taro variety, the strategy was widely adopted and offered numerous benefits to farmers beyond yield increase, including being easier to prepare when cooking. There is significant potential to realign research, training and extension in a way that would strengthen food security of the most food insecure by focusing upon the crops most important to this segment of society.

Ensuring programs and services are more inclusive and that they align with the needs, priorities and opportunities identified by farmers is essential. But even more radical rethought may be required: research that shows input-driven growth can increase yields tends to be based on high potential areas and not the marginal lands. Kassie et al (2010) find that sustainable land management practices, such as minimum tillage and traditional practices, outperform chemical fertilizers in low potential areas. In communities such as Wolaita, which are home to different agroecological settings than the highlands, farmer-developed practices may be more effective than ones tested in research centers.

Conducting numerous studies on farmer practices has led Nyssen to suggest that we ought to prioritize farmer knowledge, rather than enforce changes that may not be the most effective or appropriate (Nyssen et al, 2001).

Pending a significant shift in governance patterns, these programs and services will likely continue to be aligned with political objectives. As outlined in the section on governance, this will continue to limit the effectiveness of programs and services. The adjustments of

design, modality and implementation can serve to strengthen food security in southern Ethiopia. It can be justified as necessary for decision makers because the alternative – humanitarian emergency responses – is more costly and does not act to reduce the number of people experiencing food insecurity. From a politically self-serving perspective, developing more appropriate and efficient rural agricultural programs and services has upfront costs with long term returns, while the status quo will have relatively low ongoing costs with recurring high-cost emergency events. For external stakeholders and non-governmental actors, these priorities should be viewed as essential in working toward ensuring basic human rights are met and protected. In the Ethiopian context where this type of programming is political, this can be reframed as enhancing the wellbeing of individuals in order that everyone has the opportunity to reach their potential.

On a more pragmatic note, according to Handino (2014), in difficult years farmers first adjust consumption, then seek local food transfers and engage in daily labor. It is after these options are exhausted that support from the government is sought, and when that fails, assets are sold. With no further options, farmers cross the famine threshold. What is notable is that there is low dependency upon the government, a finding not new for similar rural contexts (Watts, 1983). Based upon this, however, policymakers should recognize that when help is sought, the most vulnerable may be on the brink of a serious food insecurity situation that requires immediate attention. In theory, the safety net program has emergency allotments, but these are not accessed nor are they accessible when sought (Cochrane and Tamiru, 2016). Furthermore, the safety net timing is misaligned with the period of the year in which there is greatest need of a support program of its nature. The result is a lack of support when it is most needed, and new constraints on agricultural production (Cochrane and Tamiru, 2016; Devereux and Guenther, 2009). For any mechanism to effectively prevent the loss of assets of the most vulnerable, new approaches need to be developed whereby cash or food transfers do not need to pass through layers of approvals. At the same time, however, a more streamlined process opens greater opportunities for politicization and therefore new modalities need to be considered. Direct cash transfers are one such option, discussed in more detail below. Donors and (I)NGOs can be an important mediator in these shifts, but finding the

balance between being an effective agent of change and being ignored is a task that few have successfully navigated.

Before closing this section, it merits noting that programs and services specific to agriculture are just one part of the interconnected lives smallholder families. In fact, Banerjee et al (2015) demonstrate that integrated approaches to livelihoods, taking a much more holistic approach to development planning, have positive immediate and long-term impacts on poverty reduction. The current coverage of healthcare beyond health posts, education beyond the beginning cycles, veterinary services, and fruit tree nurseries remain far too low. The Government of Ethiopia has made significant progress in expanding coverage and increasing accessibility of these services. However, much more work is required to ensure these services are of a useful quality. Veterinary services are a good example: in many cases a building exists, but is understaffed, without medication and a cold chain system for vaccines and other temperature sensitive commodities. That stated, it is easy to criticize the poor quality of existing services, but much more difficult to offer specific advice within the bounds of existing resource and capacity constraints. This study focused on food security and agricultural programs and services, and thus that is the focus of the recommendations. The government is neither a benevolent or brutal authoritarian force; it is composed of diverse individuals who span the spectrum of trying to do the best for the country and trying to do the best for themselves. Conversations I have had with federal and regional decision makers leads me toward a position of wanting to offer recommendations while also being aware that even the best decisions will be insufficient.

Infrastructure

The literature and this research have highlighted the important role that infrastructure plays in strengthening food security, including transportation, markets, irrigation, electricity and mobile phone networks, and the buildings to expand access to education, healthcare and water. The need to expand infrastructure is not a novel recommendation; Gibson also advocates for “investments in agricultural infrastructure, roads, markets,

water harvesting devices, institutions and credit” (2012: 498). Rather than offer a list of essential needs, the focus of the recommendations that follow is upon water, and they offer specific insight into this aspect of rural livelihoods. The focus on water reflects the research focus and findings, and is not a result of a systematic assessment of all potential infrastructural investments so as to determine which offer the greatest benefit for the most food insecure. With that caveat, the research consistently identifies water related infrastructure as vital for improving food security and rural livelihoods, as well as being an area in which significant potential exists.

The current situation of irrigation infrastructure in Ethiopia demonstrates both the potential and the opportunity. At present the vast majority of smallholder farmers do not have access to irrigation of any form. Exact figures are rare, due to poor information on which systems are functional and which are not, however available data suggests only a small percentage of smallholder farmers have access to irrigation. For example, in 2006, the World Bank (2006) found that only five percent of Ethiopia’s potential land for irrigation (of a total 3.7 million hectares) was irrigated. The Ministry of Water, Irrigation and Energy has stated that irrigation coverage was less than three percent as of 2010 (Birhan, 2013). Of this, a significant portion covered state-owned and commercial operations. While the exact figures are unknown, the available data makes clear that the majority of smallholder farmers do not have access to irrigation and that small- and medium-scale irrigation can contribute to significantly strengthening food security (Agide et al, 2016; Ahmed, Mume and Kedir, 2014; Beyene and Engida, 2016; Gebrehiwot, Mesfin and Nyssen, 2015; Kelilo, Ketema and Kedir, 2014; Ven Den Berg and Ruben, 2006). Irrigation should be understood not only as a potential means to increase yields and income, but as an important tool for income and food security stabilization, allowing households to reduce the risks associated with seasonality and annual rainfall fluctuations (Masset, 2012). At the same time, while irrigation offers opportunities, it is not feasible in all places and at all times, and thus this ought to be one option among others, based on the local context (Dereveux, Sabates-Wheeler and Longhurst, 2012).

The broad recommendation for irrigation expansion has been recognized by the Government of Ethiopia, and it is working with its partners to address this. For example,

the Ministry of Water, Irrigation and Energy explicitly seeks to expand irrigation coverage and has planned to construct medium- and large-scale irrigation schemes. While this study recommends the expansion of irrigation, it must also take into account issues of equity and capacity, which Yami (2016) identified as hindering the effectiveness of existing irrigation projects in Ethiopia. Irrigation projects designed to serve commercial interests may further increase inequalities. If a reduction of food insecurity is sought, the government must develop and convey explicit objectives whereby smallholder farmers are prioritized in public sector investments. It also must regulate commercial enterprises as they develop their own irrigation infrastructure lest smallholder farmers lose access to existing water resources (Bues, 2011).

Furthermore, while investment is needed to support new irrigation coverage, where and when existing irrigation infrastructure exists, there are key areas where improvements can be made in the delivery and management of water systems. Primary amongst these efficiencies is reducing water loss, particularly on-farm water loss, and enhancing management to improve fairness of distribution (Agide et al, 2016). Improving existing irrigation schemes that are non-functional or could be optimized in terms of functionality, offer a relatively low cost means to improve access to irrigation.

Also related to water infrastructure is improved access to drinking water. The literature and this thesis have made clear the linkages between food security and access to water in the realms of nutrition, sanitation, hygiene, health and time (Dereveux, Sabates-Wheeler and Longhurst, 2012). A study in Ethiopia conducted by Aklilu (2013) has demonstrated the impact improved access to drinking water has on strengthening food security directly, and this study has shown how it indirectly affects food security as a cause of illness. As with irrigation infrastructure, there is significant room for cost-efficient rehabilitation of water infrastructure, with an estimated 50,000 water supply infrastructure units in a state of disrepair across Africa (Ramalingam, 2013). Figures for all of Ethiopia are unknown but non-functioning water supply points are a common phenomenon throughout rural areas; as mentioned in Chapter 2, within Wolaita, Zonal Administration data outlines that one-fifth of hand dug wells with hand pumps are not functional, more than half of shallow wells with hand pumps, sixty nine percent of deep wells, and eleven percent of

springs with distribution are not functional. In addition to repair, management plans must address the reasons for disrepair and put in place a strategy to ensure continued functionality.

Finance

Smallholder farmers frequently need access to credit, and the available options to them in southern Ethiopia are limited, with high interest rates and inflexible repayment terms. The extent of borrowing and debt found within the study area was well beyond what many Ethiopian researchers anticipated, and provides new knowledge on the dynamics of the rural financial market. Importantly, however, the vast majority of borrowing was done to ensure basic needs (healthcare, education and food), suggesting that the potential of credit as a form of investment is not materializing. Rather, what we are witnessing is households vulnerable to minor shocks becoming reliant upon borrowing to make it through the year. The first finding, therefore, reinforces what was outlined above regarding the importance of effective and timely assistance for the most vulnerable households.

One financial option that can support a shift of service delivery is mobile-based cash transfers (conditional or unconditional), which are slowly emerging in Ethiopia but continue to be hindered by strong financial regulation. Programs such as Bolsa Familia in Brazil have shown that systems can be created that reduce ‘financial leakage’ (i.e. corruption and politicization) and effectively redistribute funds to the most vulnerable. The challenges of low telecommunication coverage and illiteracy were overcome by experimental, localized solutions. Other systems, such as offering e-vouchers instead of e-transfers, have been put into practice in Nigeria. This research does not offer a specific recommendation of which approach is most suitable for rural Ethiopia. Rather, it suggests that a relatively minor amount of national resources can be utilized to reduce costly humanitarian responses using this effective, direct modality. This recommendation has additional appeal because the current repertoire of programs and services either does

not effectively reach the most vulnerable to food insecurity (e.g. agricultural extension) or is ineffectively in addressing challenges of seasonality and emergency response.

Reducing vulnerability to shocks and necessity borrowing are only one side of the financial challenge. Significant opportunities exist for rural smallholder households to gain a greater share of their sold yields, to invest in new businesses (e.g. livestock fattening and sale), to improve their land and livelihood through diversification and land management, and more. These opportunities are not being served by the existing microfinance system, except for a few individuals. Microfinance coverage was about five percent in the studied communities, attesting to its very low usage. The largest barrier identified by community members was its design, and specifically the inflexible payment options combined with the fear of losing their land as a consequence. If the government seeks to enable microfinance opportunities, it must (1) change the program design, and (2) allow alternative, non-governmental options to develop. For example, the international non-governmental organization One Acre Fund operates throughout East Africa and one of its services is credit provision, but due to financial regulations in Ethiopia it is not able to offer this service in the country. Thus, smallholder farmers have few options to select from, and the governmental services do not have to be competitive, resulting in ineffective services continuing to operate unchallenged. Rather than call for an overhaul of the financial system, specific policies can be developed that allow registered non-profit organizations to offer credit services. This minor shift will have an important impact while not requiring lengthy discussions about the national financial regulatory system.

On the subject of finance, a large amount of interest has been generated by smallholder farmer insurance programs in Ethiopia. Available research, which is limited, suggests low demand for existing insurance services. For example, Oren (2013) found that Ethiopian farmers, despite an apparent need for it, did not adopt insurance when it was offered to them. This study also identified that areas where government safety net programs were active had lower levels of adoption than those that did not. However, it was not only the presence of a safety net mechanism that was found to be influential; also key was the degree to which individuals trust the provider of that service and its anticipated reliability when required. In this regard, Oren (2013) found that farmers who believed the

government to be unreliable adopted alternative sources of protection, in this case private sector insurance. Bogale (2014) offers a different explanation of low uptake levels of insurance, suggesting that willingness to pay for insurance relates to levels of education, non-farm income and levels of remittance. However, it appears the influence and/or availability of safety nets was not considered by Bogale (2014). In either case, much more research is required on the design, implementation, modalities and service providers of insurance. Theoretically, smallholder farmer insurance offers great potential to overcome the challenges of unpredictable rainfall and seasonality, but could quite easily have little to no impact, as with the microfinance system, unless designed and implemented to meet the needs and priorities of smallholder farmers.

Private Sector

Rural development programming insufficiently takes into account the important role of the private sector in smallholder farmer livelihoods. This research has shown that, either formally or informally, the private sector provides credit, purchases crops, and transports goods to markets. It is one means of accessing inputs and livestock and/or fruit trees. It is the private sector that engages with local markets and in so doing supports the expansion of employment opportunities. Although not covered in detail in this research, the expansion of khat production and trade throughout Ethiopia is an example of a rapidly expanding agricultural market almost entirely driven by the private sector and of one that has created a range of new forms of employment throughout the supply chain (Cochrane and O'Regan, 2016). In focus group discussions in the studied area, community members expressed the need to support the private sector in order to expand employment opportunities that do not require migration. As outlined in Chapter 6, there are strong concerns about lost labor and the lost opportunity for households to collectively use resources and labor, without losing youth to unskilled and skilled migration.

Uvin (2009: 119) argues strongly that “job creation is the only key to development. Nothing else matters. Any way to promote job creation must be pursued: decentralized vocational training that builds on local economic dynamics and resources; the

transformation of primary products; economic networks that bring to the growing cities the food, artisanal, and other products they need; intermediate technologies that use local resources, including in the field of recycling and trash removal; public works that create employment during low economic periods at the same time maintaining infrastructure; training in basic business skills for young men and women, as well as simplified and preferably non-corrupt procedures for establishing small businesses.” Rahmato (2007) shares an enthusiasm for job creation, and both of their examples are ones that balance social services (e.g. education and training) with economic growth. Amidst this promotion, however, I argue that we must be careful in promoting economic development and job creation by any means as some shifts result in lost land and livelihoods. They may also increase inequality and deepen vulnerability as the new jobs are short-term and low-paid.

Research by Bedemo et al (2014) finds that rural labor markets contribute significantly to household resources and income. However, this general finding requires further clarification, as not all forms of private sector investment are equal, nor do they equally offer opportunity. For example, foreign direct investment (FDI) in agriculture has the potential to create jobs, but the approach of large-scale land leases has been shown to provide marginal and temporary employment opportunities (Alamirew et al, 2015). Rather than encourage FDI in the form of large-scale land leases, the government could offer incentives for upstream investments in the agricultural sector, such as in processing and packaging for domestic and international markets. Investments of this nature support smallholder agricultural livelihoods, rather than compete with them for land and water use as well as in the markets.

A final note on private sector investment is that investment advocated as ‘pro-poor’ may not in fact be as beneficial for smallholder farmers as is suggested. For example, a study on fairtrade ventures in Ethiopia and Uganda found they are “not an effective way to improve the welfare of the poorest rural people” (Cramer et al, In press: 1). I believe there are two potential responses to the failure of fairtrade to result in positive impacts for the poorest members of society. Firstly, the fairtrade market is driven by consumers choosing to pay a higher price for products assuming that producers receive a more just payment

for their labor and products. If the additional costs do not benefit the poorest, consumers need to put pressure on fairtrade companies to ensure their practices have the positive impact that they advocate. Secondly, while the fairtrade market is growing substantially, it remains a niche market and there needs to be a recognition that the majority of crops grown and sold by smallholder farmers do not enter it. Rather than await a consumer market driven by justice and investors motivated by redistribution, the Government of Ethiopia will need to take a proactive role seeking investors in sectors that complement smallholder farmer activities in the agricultural sector and ensure that investors are regulated so that contracts are upheld and environmental regulations are abided by (Cochrane, 2012).

Clarifications

This section offered specific recommendations on governance, appropriate and efficient services, infrastructure, finance and the private sector. Before moving on, I believe it is important to offer reasoning why some topics were not outlined in detail within the recommendations section. Specifically, I want to address three areas where priority has been made by others for policy and programming in food security research, but which were not identified here as crucial areas, namely: food loss and waste, urbanization and migration, and land rights. These topics are important; the clarifications that follow will situate them in this broader section and offer some justification as to why they have not been prioritized.

A sizable literature has been devoted to food loss and waste in recent years. The estimates of the amount of food loss and waste demonstrate why this high level of attention has been given: the Food and Agriculture Organization estimates that 1.3 billion tons of food is wasted or lost, directly costing US\$750 billion annually, and indirectly costing much more in misused resources and negative impacts on the environment (FAO, 2013a). However, studies in rural Ethiopia suggest that post-harvest losses for smallholder farmers are relatively modest – between 2.2 and 3.3 percent for the main cereal teff (McCann, 1995; Minten, Engida and Tamru, 2016). This does not take into account pre-harvest

losses, which vary significantly from year to year. Undoubtedly, reducing any loss improves smallholder farmer income and food security. Available research indicates that the magnitude of the potential gains are relatively small when compared to other potential intervention areas. To reiterate, I am not arguing that food waste and loss are unimportant. Rather, that other supports for smallholder farmers have a greater potential for impact.

As land fragmentation continues and land holdings pass the minimum threshold of what is required to be self-sufficient in an average year, there is increasingly talk about supporting a shift away from smallholder livelihoods. Rahmato (2007) has suggested that the difficult reality of rural agricultural livelihoods, specifically in Wolaita, requires facilitated migration and urbanization. Rahmato argues that there is a need for appropriate and accessible training and education aligned with the needs of the job market to enable a transition that builds on opportunities, rather than adding to already high levels of unemployment. Yet in this process, we ought not lose sight of justice and human rights. As Bettini, Nash and Gioli (2016) point out, a discourse that views migration as a viable adaptation option can neglect the human rights of the individuals involved and instead place greater burdens on them as needing to migrate, find work and compete in challenging labor markets. While I do not oppose migration, and understand why elders in Wolaita want to see more commercial options for employment, these processes should be based on respect and dignity, rather than trying to relocate ‘surplus people’ from challenging agricultural livelihoods into just as challenging urban livelihoods with high levels of unemployment. Before advocating for migration away from agriculture, we ought to advocate for entitlements to rightful, fair share distributions of national resources (Ferguson, 2015).

A third clarification is required with regard to land rights and land tenure. As described in Chapter 7, since the late 1990s the government has been implementing a land certification program and this has had a range of positive impacts for smallholder farmers. The first phase of the land certification program is largely complete, and was paper-based, while the second phase, GIS-based certification, remains an expensive pilot with limited demand. The positive impact of improved tenure is important. However, I

am less confident that the second phase of certification will add significant value for smallholder farmers for its cost. Nor do I anticipate it will address some of the ongoing challenges, particularly related to land rights for commonly held property and women. In promoting improved land rights it must be recognized that legal shifts alone will be insufficient (Ossome, 2014). Research in Wolaita indicates that legal reform has had limited impact on traditional norms and attitudes (Tura, 2014). Despite significant progress in land certification and legal reform, Bezu and Holden (2014) find that only three percent of land holders are young women and only six percent of families are even considering bequeathing land to daughters. Based on the experience to date, and the anticipated impacts of a continuation of the second phase of the land certification program, ensuring that land certification and legal changes translate into more equitable and inclusive tenure shifts will involve changes to socio-cultural norms. This point is highlighted as a key area for future research later in this chapter.

Having completed this research project, engaged with a large corpus of literature and made specific recommendations, the following section outlines areas for potential future research that to address identified gaps in existing knowledge.

9.3 FUTURE RESEARCH

Within each chapter some references have been made to knowledge gaps and areas for future research. This section brings together the findings of each chapter and presents the knowledge gaps in a single location. The objective of this section is to present the advances made and direct researchers toward areas where information is crucially needed. It is hoped that this section will inform future research and provide guidance for areas where contributions would address knowledge gaps.

Chapter 2 sought to present relevant details beyond agriculture and nutrition, which are typical subjects of research on food security, by including political, historical, socio-cultural, livelihood and environmental contexts. While a large amount of information is

available about these respective areas, a knowledge gap that decision makers struggle with is a lack of localized trends of rainfall changes and future scenarios in light of climate change. Future scenario models are expanding in detail and underlying datasets, and it might therefore be assumed that overall accuracy is increasing. However, the inclusion of more data sets can result in greater uncertainty at the local level (Lutz et al, 2016), as projections are highly variable and are “based on coarse resolution and therefore limit their usefulness for adaptation planning” (Kilroy, 2015: 777). For example, in Ethiopia, Handino (2014) finds that over the past decades the two rainy seasons have been impacted quite differently. One season shows increasing variability, as the literature suggests, and the other shows relative stability. Handino (2014) used seasonal averages, and much more research is needed to look into changes of rainfall onset, duration, variability and amounts. These studies will help inform localized future scenario modeling and therefore decision makers in their priorities of adaptation planning. Furthermore, policy and programs should be informed by the localized nature of climate change impacts if they are to be effective and sustainable. Generalizations based on regions provide limited insight into the specific ways in which climate change may affect smallholder farmer livelihoods.

Due to dependency on rainfall in rural Ethiopia, information is crucial. In theory, the provision of weather forecasting information offers great opportunities to support farmers. However, the implementation of such initiatives has been challenged by a range of barriers beyond having accurate information, including diverse languages, literacy levels, and understandability of information (Fekele, 2015). Addressing these challenges requires research that supports innovative modalities of implementation. This, in turn, will necessitate experimentation and flexibility to adjust to diverse contexts with different levels of access to information, varied languages use and high levels of illiteracy.

Another knowledge gap that emerges out of the contextual data is a limited amount of research on dietary diversity in relation to seasonality. Some research has been done (e.g. Hirvonen, Taffesse and Worku, 2015), finding significant declines in dietary diversity, but much more information is needed on how seasonality affects individual households differently. The study conducted by Hirvonen, Taffesse and Worku (2015) presents

averages, and does not differentiate community, intra-community or individual data to incorporate forms of social differentiation. The study also only focused on a single year, and much more needs to be known about how dietary diversity fluctuates over time. Future research may use the Household, Consumption and Expenditure data, collected by the Ethiopian Central Statistical Agency, to present quintile-based impacts of seasonality on dietary diversity over the long term. Additional, specific studies may also be warranted.

Chapters 3 and 4 presented theoretical background on, and framing of, utilized concepts, such as development and food security, which are both relatively rich areas of academic discourse. That said, one area of research that appears somewhat problematic in the literature is the compartmentalization of components of smallholder farmer lives and livelihoods, as if they can be analyzed in isolation. The problem takes various forms; it may be that health influences agricultural practices (e.g. Ersado et al, 2004), but the interactions are not considered, or that intervention effectiveness is affected by other activities, not the ones being assessed (e.g. Segers et al, 2008). The way concepts are measured can make important factors invisible. As outlined in Chapter 4, data collection may ask about economics, land and inputs but not about political pressures or motivations. Similarly, the way surveys are typically used renders important details invisible, such as the differences in the way inputs are used, for which crops and why. Instead, findings tend to present generalized data on variables, such as fertilizer or improved seed, but farmers do not engage with these variables uniformly or consistently. Much more research is needed to gain a detailed understanding of smallholder farmer practices and decisions. More generally, nearly all research conducted in the food security space would be strengthened by more explicit discussions of the assumed pathways of change and greater critical reflexivity on potential biases and the role of unknown factors.

The participatory and co-produced approach undertaken in this research has shown how new questions, measures and metrics are identified when community members themselves co-create the data collection tools. In order to fully assess the added value of this approach, more studies are needed to analyze the differences in design and process, as well as in analysis and findings. These critical studies will help reflect on the status quo

of research in rural areas, and in doing so facilitate the identification of where, when and why participatory and co-production approaches should be required, and when not. Such research would build on studies such as that conducted by Hurlbert and Gupta (2015), who provide a framework for assessing in what situations, for which questions and to address what challenges participation is well suited, and for which it is not.

The methodological limitations of this study were outlined in Chapter 5, and could be addressed in further adapting the Stages of Food Security methodology. One of the implementation related limitations was the focus on households, and therefore limiting intra-households dynamics to the qualitative components. As mentioned in Chapter 5, the methodology does not demand this. Rather, it was one form of application. Future applications of the methodology are needed to better understand intra-households dynamics. Commonly, these approaches and analyses have been gender sensitive. However, other forms of intra-household social vulnerability need to be taken into account, such as: ability, age, ethnicity, religion, health status, and relationship type (e.g. grandparent of extended family member). An additional implementation related area for future research includes adding more sites to compare different geospatial factors (e.g. access to healthcare, water, education, markets). While this study shed light on some influences, additional purposeful site selection would enable disaggregated comparisons of these variables specifically.

The findings about smallholder farmer vulnerability to food insecurity, outlined in Chapter 6, fostered the emergence of a number of interesting areas for future research, some building upon findings and others highlighted during the research process. The available literature on rural areas is significant, and at times overwhelming. During a two year period I amassed a collection of nine hundred papers specific to Ethiopia and food security. In many areas, sufficient knowledge exists, and in a few instances systematic reviews have brought together volumes of literature to synthesize findings. However, these reviews are thematic, and we do not yet have a model for how diverse themes can effectively be synthesized and integrated into broader reviews. This area of research requires methodological experimentation and testing, and I anticipate a lengthy course of trial and error would be required. Nonetheless, it is necessary to find methods to link

agriculture with health and nutrition, and with water, sanitation and hygiene, and be influenced by political science and anthropology. In the era of big data, the question is not necessarily what we know, but how we analyze, synthesize and integrate.

The challenge of synthesis highlights a related, broader research shortcoming of ensuring that findings influence decision making. In order to ensure that results support evidence-based decision making in planning, policy and programming, much more needs to be invested in translation, communicating, networking and brokering. The complexity of enacting change was explored in Chapter 8, where it was noted that the influencing process is neither easy nor straightforward. Young (2008) calls for more explicit funding, capacity and activity devoted to knowledge translation and brokering, as researchers cannot be expected to have, or acquire, the skills required to effectively communicate findings for non-academic audiences and identify the key stakeholders to communicate with. The modality of research requires revisiting lest the volumes of published work prove irrelevant for decision makers.

A vulnerability that was identified in the literature and outlined in Chapter 6 was the lack of land tenure for women, and to a lesser extent for commonly held property, despite legal changes and the implementation of the land certification program. It is clear that legal shifts and programs have had a minor impact on the socio-cultural norms that inform who owns land and to whom land is given. However, limited research, experimentation and programming experience is available about how these norms, which are often based on localized ethnic and religious traditions, can be effectively transformed to ensure more equitable and inclusive land tenure. This is an important area for future research that will require detailed ethnographic studies to inform regional behavior change communication efforts and programming.

Assessing vulnerability to food insecurity raised a specific question about education, one which has been identified by multiple researchers but remains unexplained: communities further from institutions of education, up to the secondary level and to an extent including university, have a higher average educational attainment than the community nearer to educational institutions. This finding is counterintuitive as one expects greater access to result in higher attainment. This research offers only anecdotal evidence. It is

unknown if this trend is experienced generally in southern Ethiopia, or if it is specific to this particular research area.

This research did not focus upon how farmers interact with multiple, sometimes contradictory, messages about what they ought to do, and how. While the government services promote chemical inputs, improved seed varieties and cereal crops, some (I)NGOs and other government programs focus on agroecological approaches that utilize non-chemical, locally sourced inputs and prioritize the genetic diversity of seed along with greater crop diversity. Additionally, even where agricultural promotion is only provided by the extension workers, and therefore with a consistent message, other community-based activities may promote contradictory messages, such as those dealing with water management, soil conservation and climate change adaptation – including how advocacy interacts with traditional knowledge. It remains unclear how farmers interpret these diverse messages, and to what extent one program may influence adoption in others. At least one study in Ethiopia (Segers et al, 2008) has shown that programs do interact with one another, something which almost always goes unnoticed or unnoted. The complexity of change in practice and the interrelationship of apparently unrelated advocacy (and other action) is an area that has received very little attention. As a result only anecdotes and specific case studies shed light on the potential influences such relationships may play. This is an area where future research can shed insight, methodologically and as research findings.

Chapter 8 evaluated theories of change, starting with the assumptions embedded within the participatory and co-produced approach used in this research project. This was followed by an exploration of alternative theories of change and what insight they offer into how and why change did not materialize as a result of the processes and findings. The chapter concluded with positive remarks about adaptive management, learning and complexity. Yet, these areas of thinking have largely been driven by practitioners, and have not yet been overly influential in forcing researchers to re-think and re-conceptualize research. Some research approaches, such as action research, are problem-driven and build in reflective processes. However, even within these more emergent approaches to research, it appears that much more could be learned from the practice of

adaptive management, learning and complexity. Works such as that by Burns and Worsley (2015) provide an example of how research and practice can be bridged to enable cross-pollination between research-practice-policy interfaces and facilitate new waves of methodological thinking for research.

9.4 FINAL WORDS

Almost a decade ago Rahmato (2007) outlined that the future of rural agricultural livelihoods in Wolaita has become less viable; farmers were vulnerable to even the smallest of shocks and emergency situations were recurrent. Some more recent studies suggest that even if the poorest farmers adopted all the advocated practices and inputs it would not be sufficient to uplift them from poverty (Kotu and Admassie, 2015). These are difficult and worrisome predictions, ones which I grappled with in Chapter 4 in terms of focusing on pragmatic reforms or calls for transformative revolution. I have attempted to strike a balance between these two, not by simply offering recommendations on design and implementation adjustments, but by attending to systemic questions of governance and justice. As I have argued throughout, the way forward for research and practice that strengthens food security in rural areas, particularly for the most food insecure, requires thinking and acting politically. This includes explicitly investigating and acting upon information that shows who is excluded, marginalized and disenfranchised. It also requires envisioning change beyond the compartments of agricultural extension and credit, such as facilitating by citizen participation, free speech and freedom of the press. The impact of inclusive political and economic systems on food security cannot be understated, yet many food security programs and services act as if they are apolitical and compartmentalized. Undoubtedly, Ethiopia is making progress in creating new programs and expanding the coverage of services, yet significant challenges remain. With almost half of all children under the age of five experiencing stunted growth due to malnutrition, the need for action is urgent lest another generation have its opportunity to fulfill its potential limited by food insecurity.

REFERENCES CITED

- Aalen, L. 2011. *The Politics of Ethnicity in Ethiopia*. Brill: Leiden.
- Abate, G. T., Rashid, S., Borzaga, C. and Getnet, K. 2016. Rural Finance and Agricultural Technology Adoption in Ethiopia: Does the Institutional Design of Lending Organizations Matter? *World Development* 84: 235-253.
- Abay, K. and Hirvonen, K. 2016. Does Market Access Mitigate the Impact of Seasonality on Child Growth? Panel Data Evidence from Northern Ethiopia. International Food Policy Research Institute, ESSP Working Paper 85.
- Abbink, J. 2006. Discomfiture of Democracy? The 2005 Election Crisis in Ethiopia and its Aftermath. *African Affairs* 105(419): 173-199.
- Abdulla, A. M. 2015. Determinants of Household Food Security and Coping Strategies: The Case of Bule-Hora District, Borana Zone, Oromia, Ethiopia. *European Journal of Food Science and Technology* 3: 30-44.
- Abebe, S. G. 2016. *The Last Post-Cold War Socialist Federation: Ethnicity, Ideology and Democracy in Ethiopia*. Routledge: New York.
- Abegaz, B. 2011. *Political Parties in Business*. Working Paper 113. Department of Economics, College of William and Mary: Williamsburg.
- Abraham, A. 2013. Toward a Workable Biosafety System for Regulating Genetically Modified Organisms in Ethiopia. *GM Crops & Food: Biotechnology in Agriculture and the Food Chain* 4: 28-35.
- Abrha, H., Belew, D. and Woldegiorgis, G. 2014. Effect of Inter and Intra Row Spacing on Seed Tuber Yield and Yield Components of Potato (*Solanum tuberosum* L.) at Ofla Woreda, Northern Ethiopia. *African Journal of Plant Science* 8(6): 285-290.
- ACCRA. 2011. *Preparing for the future? Understanding the influence of development interventions on adaptive capacity at the local level in Ethiopia*.

http://oxfamilibrary.openrepository.com/oxfam/bitstream/10546/18829_0/3/rr-accra-ethiopia-development-adaptive-capacity-report-271011-en.pdf.

- Acemoglu, D. and Robinson, J. A. 2006. *Economic Origins of Dictatorship and Democracy*. Cambridge University Press: New York.
- Acemoglu, D. and Robinson, J. A. 2012. *Why Nations Fail: The Origins of Power, Prosperity, and Poverty*. Crown Business: New York.
- Addis Standard. 2016. Ethiopia Braces for Massive Protest Rally Called by Online Oromo Protest Activists. <http://addisstandard.com/ethiopia-braces-massive-protest-rally-called-online-oromo-protest-activists/>
- Adedeji, A. 1989. Interaction between Structuralism, Structural Adjustment and Food Security Policies in Development Policy Management. European Centre for Development Policy Management: Maastricht.
- Adugna, A. 2014. Southern Nations, Nationalities and Peoples. <http://www.ethiodemographyandhealth.org/SNNPR.html>
- Adugna, F. 2011. Overlapping Nationalist Projects and Contested Spaces: The Oromo-Somali Borderlands in Southern Ethiopia. *Journal of Eastern African Studies* 5(4): 773-787.
- Africa Intelligence. 2013. Ethiopia: Land policy revisited. <http://farmlandgrab.org/post/view/22621>
- Africa Leadership Forum. 1989. *The Challenges of Agricultural Production and Food Security in Africa*. Conference Report 27-30 July 1989, Ota, Nigeria.
- Agarwal, B. 2013. *Food Security, Food Sovereignty and Democratic Choice: Addressing Potential Contradictions*. Presented at Agrarian Studies Conference, Yale University, September 14-15.
- Agide, Z., Hailelassie, A., Sally, H., Erkossa, T., Schmitter, P., Langan, S. and Hoekstra, D. 2016. *Analysis of Water Delivery Performance of Smallholder Irrigation Schemes in Ethiopia: Diversity and Lessons Across Schemes, Typologies and Reaches*. International Livestock Research Institute: Nairobi.

- Ahmad, A. H. 2000. Muslims of Gondar 1864-1941. *Annales d’Ethiopie* 16: 161-172.
- Ahmed, B., Mume, J. and Kedir, A. 2014. Impact of Small-scale Irrigation on Farm Income Generation and Food Security Status: The Case of Lowland Areas, Oromia, Ethiopia. *International Journal of Economics and Empirical Research* 2(10): 412-419.
- Ahmed, M. H. 2015. Adoption of Multiple Agricultural Technologies in Maize Production of the Central Rift Valley of Ethiopia. *Studies in Agricultural Economics* 117: 162-168.
- Aklilu, A. Z. 2013. Water, Smallholders and Food Security – An Econometric Assessment of the Effect of Time Spent on Collecting Water on Households’ Economy and Food Security in Rural Ethiopia. Master’s thesis, Environmental Economics and Management, Swedish University of Agricultural Sciences.
- Aklilu, H. A., Alemkinders, C. J., Udo, H. M. and van der Zijpp, A. J. 2007. Village Poultry and Marketing in Relation to Gender, Religious Festivals and Market Access. *Tropical Animal Health Production* 39: 165-177.
- Alamgir, M. and Arora, P. 1991. *Providing Food Security for All*. International Fund for Agricultural Development, New York University Press: New York.
- Alamirew, B., Grethe, H., Siddig, K. H. and Wossen, T. 2015. Do Land Transfers to International Investors Contribute to Employment Generation and Local Food Security? Evidence from Oromia Region, Ethiopia. *International Journal of Social Economics* 42(12): 1121-1138.
- Alinsky, S. D. 1971. *Rules for Radicals*. Vintage: New York.
- Altieri, M. A. 1995. *Agroecology: Creating the Synergisms for a Sustainable Agriculture*. UNDP Guidebook Series: New York.
- Amnesty International. 2014. Ethiopia: Submission to the UN Universal Periodic Review, 19th Session of the UPR Working Group. Amnesty International.

- Amnesty International. 2016. Ethiopia: Dozens Killed as Police Use Excessive Force Against Peaceful Protesters. www.amnesty.org/en/latest/news/2016/08/ethiopia-dozens-killed-as-police-use-excessive-force-against-peaceful-protesters/
- Anderson, B. 1983. *Imagined Communities*. Verso: New York.
- Andrews, M. 2013. *The Limits of Institutional Reform in Development: Changing Rules for Realistic Solutions*. Cambridge University Press: Cambridge.
- Attwood, D. 2007. Small is Deadly, Big is Wasteful. In *Waterscapes* edited by A. Baviskar. Permanent Black Press: New Delhi.
- Autesserre, S. 2010. *The Trouble with the Congo: Local Violence and the Failure of International Peacebuilding*. Cambridge University Press: New York.
- Bailey, R. and Willoughby, R. 2013. *Edible Oil: Food Security in the Gulf*. Chatham House Briefing Paper EEP BP 2013/03. Chatham House: London.
- Ballard, T. J., Kepple, A. W. and Cafiero, C. 2013. *The Food Insecurity Experience Scale: Development of a Global Standard for Monitoring Hunger Worldwide*. Technical Paper. Food and Agriculture Organization: Rome.
- Banerjee, A., Duflo, E., Goldberg, N., Karlan, D., Osei, R., Pariente, W., Shapiro, J., Thuysbaert, B. and Udry, C. 2015. A Multifaceted Program Causes Lasting Progress for the Very Poor: Evidence from Six Countries. *Science* 348(6236): 1260799-1 (p. 1-17).
- Barder, O. 2012. What is Development? Center for Global Development: <http://www.cgdev.org/blog/what-development>
- Barker, D. 2007. *The Rise and Predictable Fall of Globalized Industrialized Agriculture*. The International Forum on Globalization: San Francisco.
- Barnes, C. 2006. *Ethiopia: A Sociopolitical Assessment*. A report commissioned by the United Nations High Commissioner for Refugees, Status Determination and Protection Information Section (DIPS).
- Barnett, A. D. 1953. China's Road to Collectivization. *Journal of Farm Economics* 35(2): 188-202.

- Barraclough, S. and Utting, P. 1987. Food Security Trends and Prospects in Latin America. Working Paper No. 99, Helen Kellogg Institute for International Studies, University of Notre Dame.
- Barrett, C. 2010. Measuring Food Insecurity. *Science* 327: 825-828.
- Barth, F. 1964. Capital Investment and Social Structure of a Pastoral Nomad Group in South Persia. In *Capital, Savings and Credit in Peasant Societies from Asia, Oceania, the Caribbean and Middle America* edited by R. Firth and B. Yamey. Aldine Publishing Company: Chicago.
- Baumgartner, F. and Jones, B. 1993. *Agendas and Instability in American Politics*. University of Chicago: Chicago.
- BBC. 1984. Extent of Ethiopia Famine Revealed.
<http://news.bbc.co.uk/2/hi/8315248.stm>
- Bedemo, A., Getnet, K., Kassa, B. and Chaurasia, S. 2014. The Role of the Rural Labor Market in Reducing Poverty in Western Ethiopia. *Journal of Development and Agricultural Economics* 6(7): 299-308.
- Belay, K. 2003. Agricultural Extension in Ethiopia: The Case of Participatory Demonstration and Training Extension System. *Journal of Social Development in Africa* 18: 49-84.
- Bellu, L. 2011. *Development and Development Paradigms: A (Reasoned) Review of Prevailing Visions*. Food and Agriculture Organization: Rome.
- Benson, T., Engida, E. and Thurlow, J. 2014. The Economywide Effects of Teff, Wheat, and Maize Production Increases in Ethiopia: Results of Economywide Modeling. Working Paper 01366, International Food Policy Research Institute: Washington.
- Berhane, G., Gilligan, D., Hoddinott, J., Kumar, N. and Taffesse, A. 2014. Can Social Protection Work in Africa? The Impact of Ethiopia's Productive Safety Net Programme. *Economic Development and Cultural Change* 63: 1-16.

- Berhane, G., Hoddinott, J. and Kumar, N. 2014. The Productive Safety Net Programme and the Nutritional Status of Pre-School Children in Ethiopia – Preliminary Results. Presentation at DFID, Addis Ababa, 14 August 2014.
- Berhanu, K. 2012. The Political Economy of Agricultural Extension in Ethiopia: Economic Growth and Political Control. Working Paper 042. Future Agricultures: Brighton.
- Berhanu, K. and Poulton, C. 2014. The Political Economy of Agricultural Extension Policy in Ethiopia: Economic Growth and Political Control. *Development and Policy Review* 32(S2): S197-S213.
- Bernard, T., Dercon, S., Orkin, K. and Taffesse, A. S. 2014. The Future in Mind: Aspirations and Forward-looking Behaviour in Rural Ethiopia. CSAE Working Paper WPS/2014-16.
- Bernstein, H. 2013. Food Sovereignty: A Skeptical View. Presented at Agrarian Studies Conference, Yale University, September 14-15.
- Berry, L. and Ofcansky, T. 2004. Ethiopia a Country Study. Kessinger Publishing: Whitefish.
- Bettini, G., Nash, S. L. and Gioli, G. 2016. One Step Forward, Two Steps Back? The Fading Contours of (In)justice in Competing Discourses on Climate Migration. *The Geographic Journal* DOI: 10.1111/geoj.12192
- Beyene, B. M. 2014. The Effects of International Remittances on Poverty and Inequality in Ethiopia. *Journal of Development Studies* 50: 1380-1396.
- Beyene, L. M. and Engida, E. 2016. Public Investment in Irrigation and Training, Growth and Poverty Reduction in Ethiopia. *International Journal of Microsimulation* 9: 86-108.
- Beyene, Y., Botha, A-M. and Myburg, A. A. 2005. Genetic Diversity in Traditional Ethiopian Highland Maize Accessions Assessed by AFLP Markers and Morphological Traits. *Biodiversity and Conservation* 15: 2655-2671.

- Bezabih, M., Holden, S. and Mannberg, A. 2016. The Role of Land Certification in Reducing Gaps in Productivity between Male- and Female-owned Farms in Rural Ethiopia. *Journal of Development Studies* 52: 360-376.
- Bezu, S. and Barrett, C. B. 2010. Activity Choice in Rural Non-farm Employment (RNFE): Survival Versus Accumulative Strategy. MPRA Paper No. 55034. https://mpra.ub.uni-muenchen.de/55034/2/MPRA_paper_55034.pdf
- Bezu, S. and Holden, S. 2008. Can Food-for-work Encourage Agricultural Production? *Food Policy* 33: 541-549.
- Bezu, S. and Holden, S. 2014. Are Youth in Ethiopia Abandoning Agriculture? *World Development*, 64: 259-272.
- Bhattacharya, J., Currie, J. and Haider, S. 2004. Poverty, Food Insecurity, and Nutritional Outcomes in Children and Adults. *Journal of Health Economics* 23: 839-862.
- Biazin, B., Sterk G. and Temesgen, M. 2014. Participatory Planning of Appropriate Rainwater Harvesting and Management Techniques in the Central Rift Valley Dry Lands of Ethiopia. *Environment and Natural Resources Research* 4(3): 123-139.
- Birhan, D. 2013. Ethiopia's Ministry of Water & Energy to Add Irrigation. <http://debirhan.com/?p=1583>
- Bloch, F., Rao, V. and Desai, S. 2004. Wedding Celebrations as Conspicuous Consumption: Signaling Social Status in Rural India. *Journal of Human Resources* 39(3): 675-695.
- Bogale, A. 2014. Weather-indexed Insurance: An Elusive or Achievable Adaptation Strategy to Climate Variability and Change for Smallholder Farmers in Ethiopia. *Climate and Development*, DOI: <http://dx.doi.org/10.1080/17565529.2014.934769>
- Bonger, T., Ayeke, G. and Kuma, T. 2004. Agricultural Extension, Adoption, and Diffusion in Ethiopia. Ethiopian Development Research Institute: Addis Ababa.

- Bossio, D., Erkossa, T., Dile, Y., McCartney, M., Killiches, F. and Hoff, H. 2012. Water Implications of Foreign Direct Investment in Ethiopia's Agricultural Sector. *Water Alternatives* 5(2): 223-242.
- Bowen, G. 2008. Naturalistic Inquiry and the Saturation Concept: A Research Note. *Qualitative Research* 8: 137-152.
- Brandt, S. A., Spring, A., Hiebsch, C., McCabe, J. T., Tabogie, E., Diro, M., Wolde-Michael, G., Yntiso, G., Shigeta, M. and Tesfaye, S. 1997. The "Three Against Hunger": Enset-Based Agricultural Systems in Ethiopia. American Association for the Advancement of Science: Washington.
- Braukamper, U. 1992. Aspects of Religious Syncretism in Southern Ethiopia. *Journal of Religion in Africa* 22(3): 194-207.
- Brown, L. 2012. Diverting Corn and Grain to Biofuels Increases Food Insecurity. In *At Issue: Food Insecurity*, Edited by L. Gerdes. Greenhaven Press: New York.
- Bues, A. 2011. Agricultural Foreign Direct Investment and Water Rights: An Institutional Analysis from Ethiopia. International Conference on Global Land Grabbing, 6-8 April, Institute of Development Studies, University of Sussex.
- Bues, A. and Theesfeld, I. 2012. Water Grabbing and the Role of Power: Shifting Water Governance in the Light of Agricultural Foreign Direct Investment. *Water Alternatives* 5(2): 266-283.
- Burlando, A. 2015. The Disease Environment, Schooling, and Development Outcomes. Evidence from Ethiopia. *Journal of Development Studies* 51: 1563-1584.
- Burnett, K. and Murphy, S. 2013. What Place for International Trade in Food Sovereignty? Presented at Agrarian Studies Conference, Yale University, September 14-15.
- Burns, D. and Worsley, S. 2015. Navigating Complexity in International Development: Facilitating Sustainable Change at Scale. Practical Action Publishing: Rugby, UK.
- Busck, M., Meinecke, S., Hansen, S. and Andersen, A. 2012. Foreign Land Investments for Biofuel Production. Roskilde University Dissertation.

- Butterly, J. and Shepherd, J. 2010. *Hunger: The Biology and Politics of Starvation*. University Press of New England: Lebanon, NH.
- Carletto, C., Jolliffe, D. and Banerjee, R. 2015. From Tragedy to Renaissance: Improving Agricultural Data for Better Policies. *Journal of Development Studies* 51: 133-148.
- Carothers, T. and de Gramont, D. 2013. *The Almost Revolution: Development Aid Confronts Politics*. Carnegie Endowment: Washington.
- Case, A., Garrib, A., Menendez, A. and Olgiati, A. 2013. Paying the Piper: The High Cost of Funerals in South Africa. *Economic Development and Cultural Change* 62: 1-20.
- Catley, A., Abebe, D., Admassu, B., Bekele, G., Abera, B., Eshete, G., Rufael, T. and Haile, T. 2009. Impact of Drought-related Vaccination on Livestock Mortality in Pastoralists Areas of Ethiopia. *Disasters* 33(4): 665-685.
- Central Statistical Agency. 2004. *Agricultural Sample Survey 2003/2004, Vol. 1: Area and Production of Major Crops*. Addis Ababa: Central Statistical Agency, Federal Democratic Republic of Ethiopia.
- Central Statistical Agency. 2005. *Agricultural Sample Survey 2004/2005, Vol. 1: Area and Production of Major Crops*. Addis Ababa: Central Statistical Agency, Federal Democratic Republic of Ethiopia.
- Central Statistical Agency. 2006. *Agricultural Sample Survey 2005/2006, Vol. 1: Area and Production of Major Crops*. Addis Ababa: Central Statistical Agency, Federal Democratic Republic of Ethiopia.
- Central Statistical Agency. 2007. *Agricultural Sample Survey 2006/2007, Vol. 1: Area and Production of Major Crops*. Addis Ababa: Central Statistical Agency, Federal Democratic Republic of Ethiopia.
- Central Statistical Agency. 2008. *Agricultural Sample Survey 2007/2008, Vol. 1: Area and Production of Major Crops*. Addis Ababa: Central Statistical Agency, Federal Democratic Republic of Ethiopia.

- Central Statistical Agency. 2009. Agricultural Sample Survey 2008/2009, Vol. 1: Area and Production of Major Crops. Addis Ababa: Central Statistical Agency, Federal Democratic Republic of Ethiopia.
- Central Statistical Agency. 2010. Agricultural Sample Survey 2009/2010, Vol. 1: Area and Production of Major Crops. Addis Ababa: Central Statistical Agency, Federal Democratic Republic of Ethiopia.
- Central Statistical Agency. 2011. Agricultural Sample Survey 2010/2011, Vol. 1: Area and Production of Major Crops. Addis Ababa: Central Statistical Agency, Federal Democratic Republic of Ethiopia.
- Central Statistical Agency. 2012. Agricultural Sample Survey 2011/2012, Vol. 1: Area and Production of Major Crops. Addis Ababa: Central Statistical Agency, Federal Democratic Republic of Ethiopia.
- Central Statistical Agency. 2013. Agricultural Sample Survey 2012/2013, Vol. 1: Area and Production of Major Crops. Addis Ababa: Central Statistical Agency, Federal Democratic Republic of Ethiopia.
- Central Statistical Agency. 2014. Agricultural Sample Survey 2013/2014, Vol. 1: Area and Production of Major Crops. Addis Ababa: Central Statistical Agency, Federal Democratic Republic of Ethiopia.
- Central Statistical Agency. 2015. Agricultural Sample Survey 2014/2015, Vol. 1: Area and Production of Major Crops. Addis Ababa: Central Statistical Agency, Federal Democratic Republic of Ethiopia.
- CGD. 2014. Mapping the Impacts of Climate Change. Retrieved from:
<http://www.cgdev.org/page/mapping-impacts-climate-change>
- Chamberlin, J. and Schmidt, E. 2012. Ethiopian Agriculture: A Dynamic Geographic Perspective. In *Food and Agriculture in Ethiopia* edited by P. Dorosh and S. Rashid. University of Pennsylvania Press: Philadelphia.
- Chambers, R. 1983. Rural Development: Putting the Last First. John Wiley & Sons: New York.

- Chambers, R. 1995. Poverty and Livelihoods: Whose Reality Counts? *Environment and Urbanization* 7:173-204.
- Chambers, R. 2008. *Revolutions in Development Inquiry*. Earthscan: London.
- Chambers, R. 2012a. Forward (p. xv-xviii). In *Seasonality, Rural Livelihoods and Development* edited by S. Devereux, R. Sabates-Wheeler and R. Longhurst. Earthscan: New York.
- Chambers, R. 2012b. *Provocations for Development*. Practical Action Publishing: Warwickshire.
- Chang'a, L. B., Yanda, P. Z. and Ngana, J. 2010. Indigenous Knowledge in Seasonal Rainfall Prediction in Tanzania: A Case of South-western Highland of Tanzania. *Journal of Geography and Regional Planning* 3(4): 66-72.
- Chenoweth, E. and Stephan, M. J. 2011. *Why Civil Resistance Works: The Strategic Logic of Nonviolent Conflict*. Columbia University Press: New York.
- Chinigo, D. 2013. Decentralization and Agrarian Transformation in Ethiopia: Extending the Power of the Federal State. *Critical African Studies* 6: 40-56.
- Chinigo, D. 2015. Historicising Agrarian Transformation. Agricultural Commercialisation and Social Differentiation in Wolaita, Southern Ethiopia. *Journal of Eastern African Studies* 9(2): 193-211.
- Chirwa, E. W., Dorward, A. and Vignen, M. 2012. Seasonality and Poverty: Evidence from Malawi (p. 97-116). In *Seasonality, Rural Livelihoods and Development* edited by S. Devereux, R. Sabates-Wheeler and R. Longhurst. Earthscan: New York.
- Ciampalini, R., Billi, P., Ferrari, G. and Borselli, L. 2008. Plough Marks as a Tool to Assess Soil Erosion Rates: A Case Study in Axum (Ethiopia). *Catena* 75: 18-27.
- Ciampalini, R., Billi, P., Ferrari, G., Borselli, L. and Follain, S. 2012. Soil Erosion Induced by Land Use Changes as Determined by Plough Marks and Field Evidence in the Aksum Area (Ethiopia). *Agriculture, Ecosystems and Environment* 146: 197-208.

- Cimadamore, A. D., Koehler, G. and Pogge, T. 2016. Poverty and the Millennium Development Goals: A Critical Look Forward (p. 3-25). In *Poverty and the Millennium Development Goals* edited by A. Cimadamore, G. Koehler and T. Pogge. Zed Books: London.
- Cochrane, L. 2011. Food Security or Food Sovereignty: The Case of Land Grabs. *Journal of Humanitarian Assistance*: Feinstein International Center, Tufts University.
- Cochrane, L. 2012. Ethiopian Agricultural Development: Policy and Practice. <http://farmlandgrab.org/post/view/21072>
- Cochrane, L. 2014. Reform and the Food Sovereignty Movement: Global food security, smallholder intensification and individual agency. Conference Proceedings, Analysis & Investigation of Graduate Research Projects: Proseminar Series 2014 (p. 81-87). The Centre for Sociality, Spatial & Economic Justice Press: Kelowna.
- Cochrane, L. 2016. Land Grabbing. In *Encyclopedia of Food and Agricultural Ethics*, edited by P. Thompson and D. Kaplan. Springer Netherlands.
- Cochrane, L. 2017a. Stages of Food Security: A Co-produced Mixed Methods Methodology. *Progress in Development Studies*.
- Cochrane, L. 2017b. Worldviews Apart: Agriculture Extension and Ethiopian Smallholder Farmers. *Journal of Rural Social Sciences*.
- Cochrane, L. and Amery, H. A. Under review. Oil Rich Arabian Gulf Land Grabbers?
- Cochrane, L., Boulanger, R., Sheikh, G. and Song, G. Under review. A Case for National Ethics Approval in International Development Research.
- Cochrane, L. and Costolanski, P. 2013. Climate Change Vulnerability and Adaptability in an Urban Context: A Case Study of Addis Ababa, Ethiopia. *International Journal of Sociology and Anthropology* 5(6): 192-204.
- Cochrane, L. and Gecho, Y. 2016. The Dynamics of Vulnerability and Adaptive Capacity in Southern Ethiopia (p. 139-148). In *Responses to Disasters and Climate*

- Change: Understanding Vulnerability and Fostering Resilience*, edited by M. Companion and M. Chaiken. CRC Press: Boca Raton.
- Cochrane, L. and O'Regan, D. 2016. Legal Harvest and Illegal Trade: Trends, Challenges and Options in Khat Production in Ethiopia. *International Journal of Drug Policy* 30: 27-34.
- Cochrane, L. and Skjerdal, T. 2015. Reading the Narratives: Resettlement, Investment and Development in Ethiopia. *Forum for Development Studies* 42(3): 467-487.
- Cochrane, L. and Tamiru, Y. 2016. Ethiopia's Productive Safety Net Program: Politics, Power and Practice. *Journal of International Development* 28(5): 649-665.
- Cochrane, L. and Thornton, A. 2016. Charity Rankings: Delivering Development or Dehumanizing Aid? *Journal of International Development* 28: 57-73.
- Cochrane, L. and Thornton, A. 2017. A Socio-Cultural Analysis of Smallholder Borrowing and Debt in Southern Ethiopia. *Journal of Rural Studies* 49: 69-77.
- Cochrane, L. and Vercillo, S. 2017. Youth perspectives on migration, poverty and the precarious future of farming in rural Ethiopia. In *Gender and Youth Migration: A Global Survey*. Polity Press.
- Cohen, J. and Isaksson, N. 1987. Villagisation in Ethiopia's Arsi Region. *The Journal of Modern African Studies* 25(3): 435-464.
- Coll-Black, S., Gilligan, D. O., Hoddinott, J., Kumar, N., Taffesse, A. S. and Wiseman, W. 2012. Targeting Food Security Interventions in Ethiopia: The Productive Safety Net Programme. In *Food and Agriculture in Ethiopia: Progress and Policy Challenges* edited by P. Dorosh and S. Rashid. University of Pennsylvania: Philadelphia.
- Cooke, B. and Kothari, U. 2001. *Participation: The New Tyranny?* Zed Books: London.
- Coppock, D. L. 1993. Grass Hay and Acacia Fruits: A Local Feeding System for Improved Calf Performance in Semi-Arid Ethiopia. *Tropical Animal Health and Production* 25(1): 41-49.
- Cotula, L. 2013. *The Great African Land Grab? Agricultural Investments and the Global Food System*. Zed Books: New York.

- Cotula, L., Vermeulen, S., Leonaard, R. and Keeley, J. 2009. Land Grab or Development Opportunity? Agricultural Investment and the International Land Deals in Africa. Food and Agriculture Organization: Rome.
- Cramer, C., Johnston, D., Mueller, B., Oya, C. and Sender, J. In press. Fairtrade and Labour Markets in Ethiopia and Uganda. *Journal of Development Studies*.
- Cronon, W. 1992. A Place for Stories: Nature, History, and Narrative. *Journal of American History* 78(4): 1347-1376.
- CSA, EDRI and IFPRI. 2006. Atlas of the Ethiopian Rural Economy. Central Statistical Agency: Addis Ababa.
- CSA. 1996. The 1994 Population and Housing Census of Ethiopia. Central Statistical Agency: Addis Ababa.
- CSA. 2000. Ethiopia Demographic and Health Survey. Central Statistical Agency: Addis Ababa.
- CSA. 2007. Population and Housing Census. Central Statistical Agency: Addis Ababa.
- CSA. 2011. Demographic and Health Survey. Central Statistical Agency: Addis Ababa.
- CSA. 2013. Population Projection of Ethiopia for All Regions at Wereda Level from 2014 – 2017. Central Statistical Agency: Addis Ababa.
- D’Andrea, A. C., Manzo, A., Harrower, M. J. and Hawkins, A. L. 2008. The Pre-Aksumite and Aksumite Settlement of NE Tigray, Ethiopia. *Journal of Field Archeology* 33: 151-176.
- Dabre-Madhin, E. 2011. A Market for Abdu: Creating a Commodity Exchange in Ethiopia. International Food Policy Research Institute: Washington.
- Dalelo, A. and Stellmacher, T. 2012. Faith-based Organizations in Ethiopia: The Contribution of the Kale Heywet Church to Rural Schooling, Ecological Balance and Food Security. Bonn University Press: Goettingen.
- Davison, W. 2015. Yes, Ethiopia has problems – but this drought is no 1984 return. <https://www.theguardian.com/commentisfree/2015/nov/11/ethiopia-drought-1984-economic-growth-safety-net>

- de Waal, A. 1990. Democratic Political Processes and the Fight Against Famine. Working Paper 107. Institute of Development Studies: Brighton.
- de Waal, A. 1991. Evil Days: 30 Years of War and Famine in Ethiopia. Human Rights Watch: New York.
- de Waal, A. 1997. Famine Crimes: Politics & the Disaster Relief Industry in Africa. Indiana University Press: Bloomington.
- de Waal, A. 2015. The Real Politics of the Horn of Africa: Money War and the Business of Power. Polity: Malden.
- de Waal, A., Taffesse, A. S. and Carruth, L. 2006. Child Survival during the 2002-2003 Drought in Ethiopia. *Global Public Health* 1(2): 125-132.
- Debela, B. L., Shively, G. and Holden, S. T. 2014. Does Ethiopia's Productive Safety Net Program Improve child nutrition? Centre for Land Tenure Studies Working Paper 01/14, Norwegian University of Life Sciences.
- Decron, S. and Singh, A. 2011. From Nutrition to Aspirations and Self-Efficacy: Gender Bias over Time among Children in Four Countries. Working Paper No. 71. Young Lives, Department of International Development, University of Oxford: Oxford.
- Deininger K., Ali, D., Holden, S. and Zevenbergen, J. 2007. Rural Land Certification in Ethiopia: Process, Initial Impact, and Implications for Other African Countries. Policy Research Working P. 4218. World Bank: Washington.
- Deininger, K., Ali, D. and Alemu, T. 2011. Productivity Effects of Land Rental Markets in Ethiopia: Evidence from a Matched Tenant-landlord Sample. Policy Research Working Paper 5727. World Bank: Washington.
- Deininger, K., Ali, D., and Alemu, T. 2009. Impacts of Land Certification on Tenure Security, Investment, and Land Markets: Evidence from Ethiopia. EFD Discussion Paper 09-11. Environment for Development and Resources for the Future: Washington.

- Deininger, K., Jin, S., Anenew, B., Gebre-Selassie, S., and Nega, B. 2003. Tenure Security and Land-related Investment. Policy Research Working P. 2991. Working Bank: Washington.
- Deininger, K., Nizalov, D. and Singh, S. K. 2013. Are Mega Farms the Future of Global Agriculture? Exploring the Farm Size-productivity Relationship for Large Commercial Farms in Ukraine. Policy Research Working Paper 6544. World Bank: Washington.
- Derbew, D. 2013. Ethiopia's Renewable Energy Power Potential and Development Opportunities. Presentation in Abu Dhabi, UAE, 22 June.
- Dercon, S. and Krishnan, P. 2000. Vulnerability, Seasonality and Poverty in Ethiopia. *Journal of Development Studies* 36(6): 25-53.
- Dercon, S., Hoddinott J. and Woldehanna, T. 2012. Growth and Chronic Poverty: Evidence from Rural Communities in Ethiopia. *Journal of Development Studies* 48(2): 238-253.
- Devarajan, S. and Khemani, S. 2016. If Politics is the Problem, How Can External Actors be Part of the Solution? Policy Research Working Paper 7761. World Bank Group: Washington.
- Devereux, S. 2009. Why Does Famine Persist in Africa? *Food Security* 1: 25-35.
- Devereux, S. and Guenther, B. 2009. Agriculture and Social Protection in Ethiopia. *Growth & Social Protection Working Paper 03, Future Agricultures.*
- Devereux, S. and Sharp, K. 2006. Trends in Poverty and Destitution in Wollo, Ethiopia. *Journal of Development Studies* 42(4): 592-610.
- Devereux, S. Vaitla, B. and Hauenstein-Swan, S. 2008. *Seasons of Hunger*. Pluto Press: London.
- Devereux, S., Sabates-Wheeler, R. and Longhurst, R. (Eds) 2012. *Seasonality, Rural Livelihoods and Development*. Earthscan: New York.
- DHS. 2011. *Demographic and Health Survey*. Central Statistics Agency: Addis Ababa.

- Di Falco, S., Yesuf, M., Kohlin, G., Ringler, C. 2011. Estimating the Impact of Climate Change on Agriculture in Low-income Countries: Household Level Evidence from the Nile Basin, Ethiopia. *Environmental and Resource Economics* 52(4): 457—478.
- Donini, A. (Ed.) 2012. *The Golden Fleece: Manipulation and Independence in Humanitarian Action*. Kumarian Press: Sterling.
- Dorosh, P. and Rashid, S. 2012. *Food and Agriculture in Ethiopia*. University of Pennsylvania Press: Philadelphia.
- Dubale, B., Solomon, A., Geremew, B, Sethumadhava, R. G. and Waktole, S. 2014. Mycoflora of Grain Maize (*Zea mays* L.) Stored in Traditional Storage Containers (Gombisa and Sacks) in Selected Woredas of Jimma Zone, Ethiopia. *African Journal of Food, Agriculture, Nutrition and Development* 14(2): 8676-8694.
- Dwyer, A. 2015. *The Anatomy of Giving*. Stratford Press: Toronto.
- Easterly, W. 2006. Planners versus Searchers in Foreign Aid. *Asian Development Review* 23(2): 1-35.
- Edkins, J. 2007. The Criminalization of Mass Starvations: From Natural Disaster to Crime Against Humanity. In *The New Famines: Why Famines Persist in an Era of Globalization*, edited by S. Devereux. Routledge: New York.
- EEA/EEPRI (Ethiopian Economic Association / Ethiopian Economic Policy Research Institute). 2006. Evaluation of the Ethiopian Agricultural Extension with Particular Emphasis on the Participatory Dimension and Training Extension System. EEA/EEPRI: Addis Ababa.
- Elias, A., Nohmi, M., Yasunobu, K. and Ishida, A. 2015. Farmers' Satisfaction with Agricultural Extension Service and its Influencing Factors: A Case Study in North West Ethiopia. *Journal of Agricultural Science and Technology* 17: 1-15.
- Eneyew, A. and Bekele, W. 2012. Causes of Household Food Insecurity in Wolayta: Southern Ethiopia. *Journal of Stored Products and Postharvest Research* 3: 35-48.
- Eriksen, P. 2008. What is the Vulnerability of a Food System to Global Environmental Change? *Ecology and Society* 13(2): 14 (1-18).

- Ersado, L., Amacher, G. and Alwang, J. 2004. Productivity and Land Enhancing Technologies in Northern Ethiopia: Health, Public Investments, and Sequential Adoption. *American Journal of Agricultural Economics* 86(2): 321-331.
- Escobar, A. 1988. Power and Visibility: Development and the Invention and Management of the Third World. *Cultural Anthropology* 3(4): 428-443.
- Escobar, A. 1994. *Encountering Development: The Making and Unmaking of the Third World*. Princeton University Press: Princeton.
- Evans, A. 2012. *Resources, Risk and Resilience: Scarcity and Climate Change in Ethiopia*. Center on International Cooperation, New York: New York University.
- Evans, A. 2015. What Transformation Looks Like.
www.globaldashboard.org/2015/08/27/what-transformation-looks-like/
- Eversole, R. and Johnson, M. 2014. Migrant Remittances and Household Development: An Anthropological Analysis. *Development Studies Research* 1: 1-15.
- Eyasu, E. 2000. Soil Enrichment and Depletion in Southern Ethiopia. In *Nutrients on the Move: Soil Fertility Dynamics in African Farming Systems*, edited by T. Hilhorst and F. Muchena. IIED: London.
- Eyasu, E. 2002. *Farmers' Perception of Soil Fertility Change and Management*. SOS-Sahel: Addis Ababa.
- Eyben, R. 2014. *International Aid and the Making of a Better World: Reflexive Practice*. Routledge: New York.
- FAO and WFP. 2008. *Special Report: FAO/WFP Crop and Food Security Assessment Mission to Ethiopia (Phase 2)*. Food and Agriculture Organization: Rome / World Food Programme: Rome.
- FAO. 2003. *Trade Reforms and Food Security*. Food and Agriculture Organization: Rome.
- FAO. 2006. *Food Security*. Food and Agriculture Organization: Rome.
- FAO. 2008a. *FAO/WFP Crop and Food Security Assessment Mission to Ethiopia (Phase 2)*. Food and Agriculture Organization: Rome.

- FAO. 2008b. State of Food Insecurity in the World. Food and Agriculture Organization: Rome.
- FAO. 2009. Declaration of the World Summit on Food Security. World Summit on Food Security, November 16-18, Rome.
- FAO. 2010. State of Food Insecurity in the World. Food and Agriculture Organization: Rome.
- FAO. 2012a. Part 3 – Feeding the World. Food and Agriculture Organization: Rome.
- FAO. 2012b. The Global Forum on Food Security and Nutrition: Online Discussions that Make a Difference. Food and Agriculture Organization: Rome.
- FAO. 2013a. Food Waste Harms Climate, Water, Land and Biodiversity – New FAO Report. <http://www.fao.org/news/story/en/item/196220/icode/>
- FAO. 2013b. Mainstreaming the Right to Food into Sub-national Plans and Strategies. <http://www.fao.org/righttofood/our-work/current-projects/rtf-district-level/en/>
- FAO. 2016. About Right to Food. <http://www.fao.org/righttofood/about-right-to-food/en/>
- Farmer, P. 1999. Infections and Inequalities: The Modern Plagues. University of California Press: Berkeley.
- Farmer, P. 2005. Pathologies of the Power: Health, Human Rights, and the New War on the Poor. University of California Press: Berkeley.
- Farmer, P. and Gutierrez, G. 2013. In the Company of the Poor: Conversations between Dr. Paul Farmer and Father Gustavo Gutierrez. Orbis: Maryknoll.
- Fasil, M. 2015. An Ethiopian Court Jailed Muslim Leaders, Activists to Lengthy Terms. <http://allafrica.com/stories/201508032408.html>
- FDRE. 2007. Proclamation No. 551/2007. Federal Negarit Gazeta of the Federal Democratic Republic of Ethiopia: Addis Ababa.
- Fekele, H. G. 2015. Assessing Weather Forecasting Needs of Smallholder Farmers for Climate Change Adaptation in the Central Rift Valley of Ethiopia. Earth Science & Climate Change 6(10): 1000312 (p. 1-8).

- Ferguson, J. 1990. *The Anti-politics Machine: "Development," Depoliticization, and Bureaucratic Power in Lesotho*. Cambridge University Press: New York.
- Ferguson, J. 2015. *Give a Man a Fish: Reflections on the New Politics of Distribution*. Duke University Press: Durham.
- FEWS NET. 2010. *Food Security Outlook Update: November 2010*. FEWS NET: Washington.
- FEWS NET. 2011a. *Food Security Outlook Update: August 25, 2012*. FEWS NET: Washington.
- FEWS NET. 2011b. *Food Security Outlook Update: November 2011*. FEWS NET: Washington.
- FEWS NET. 2011c. *Food Security Outlook: October 2010 to March 2011*. FEWS NET: Washington.
- FEWS NET. 2011d. *Food Security Outlook: January to June 2011*. FEWS NET: Washington.
- FEWS NET. 2012a. *Food Security Outlook: March to June 2013*. FEWS NET: Washington.
- FEWS NET. 2012b. *Food Security Outlook: July to December 2013*. FEWS NET: Washington.
- FEWS NET. 2013. *Food Security Outlook Update: March 2013*. FEWS NET: Washington.
- FEWS NET. 2014. *Food Security Outlook Update: March 2014*. FEWS NET: Washington.
- Feyissa, D. 2011. *Aid Negotiation: The Uneasy "Partnership" between EPRDF and the Donors*. *Journal of Eastern African Studies* 5(4): 788-817.
- Feyissa, D. and Lawrence, B. 2014. *Muslims Renegotiating Marginality in Contemporary Ethiopia*. *The Muslim World* 104: 281-305.
- Fisseha, K. 2014. *Food Security and the Relative Importance of Various Household Assets: The Case of Farm Households in Southern Ethiopia*. Master's Thesis,

Department of Urban and Rural Development, Swedish University of Agricultural Sciences.

- Foucault, M. 1977. *Discipline and Punish: The Birth of the Prison*. Random House: New York.
- Foucault, M. 1979. Governmentality. *Ideology and Consciousness* 6: 5-21.
- Freire, P. 1970. *Pedagogy of the Oppressed*. Continuum International: New York.
- Friis C. and Reenberg, A. 2010. *Land Grab in Africa: Emerging Land System Drivers in a Teleconnected World*, University of Copenhagen.
- Fujimoto, T. 2009. Taro (*Colocasia esculenta* [L.] Schott) Cultivation in Vertical Wet-Dry Environments: Farmers' Techniques and Cultivar Diversity in Southwestern Ethiopia. *Economic Botany* 63(2): 152-166.
- Fukuyama, F. 2001. Social Capital, Civil Society and Development. *Third World Quarterly* 22(1): 7-20.
- Gaventa, J. and McGee, R. 2010. *Citizen Action and National Policy Reform: Making Change Happen*. Zed Books: New York.
- Gebeyehu, B., Regasa, G. and Tebeje, M. 2015. On-farm Activities and Households Food Security in Wolaita Zone, Ethiopia. *Food Science and Quality Management* 41: 73-78.
- Gebre Mariam, A. 1991. Livestock and Economic Differentiation in North East Ethiopia: The Afar Case. *Nomadic Peoples* 29: 10-20.
- Gebre-Egziabher, K. A. 2013. Land Registration and Certification as a Key Strategy for Ensuring Gender Equity, Preventing Land Grabbing and Enhancing Agricultural Productivity: Evidence from Tigray, Ethiopia. *International Journal of Africa Renaissance Studies – Multi-, Inter- and Transdisciplinarity* 8(2): 5-22.
- Gebrehiwot, N. T., Mesfin, K. A. and Nyssen, J. 2015. Small-scale Irrigation: The Driver for Promoting Agricultural Production and Food Security (The Case of Tigray Regional State, Northern Ethiopia). *Irrigation & Drainage Systems Engineering* 4(2): 1000141 (p. 1-9).

- Gebrehiwot, T. and van der Veen, A. 2014. Coping with Food Insecurity on a Micro-scale: Evidence from Ethiopian Rural Households. *Ecology of Food and Nutrition* 53(2): 214-240.
- Gebremariam, G. G., Edriss, A. K., Maganga, A. M. and Terefe, A. T. 2013. Labor as a Payment Vehicle for Valuing Soil Conservation Practices in a Subsistence Economy: Case of Adwa Woreda in Ethiopia. *American Journal of Economics* 3(6): 283-290.
- Gecho, Y. 2014. Livelihood Strategies and Food Security of Rural Households in Wolaita Zone, Southern Ethiopia. Doctoral Dissertation submitted to the College of Agriculture and Natural Resource Management, Haramaya University.
- Gecho, Y., Ayele, G., Lemma, T. and Alemu, D. 2014. Rural Household Livelihood Strategies: Options and Determinants in the Case of Wolaita Zone, Southern Ethiopia. *Social Sciences* 3(3): 92-104.
- Geleta, E. B. 2016. Microfinance and Women's Empowerment: An Ethnographic Inquiry. *Development in Practice* 26: 91-101.
- GFRAS. 2012. Fact Sheet on Extension Services. Global Forum for Rural Advisory Services: Lindau.
- Gibson, M. 2012. *The Feeding of Nations: Redefining Food Security for the 21st Century*. CRC Press: Boca Raton.
- Gill, G. 1991. *Seasonality and Agriculture in the Developing World: A Problem of the Poor and Powerless*. Cambridge University Press: Cambridge.
- Gill, P. 2010. *Famine and Foreigners: Ethiopia Since Live Aid*. Oxford University Press: Oxford.
- Gilligan, D., Hoddinott, J., Taffesse, A. 2009. The Impact of Ethiopia's Productive Safety Net Programme and its Linkages. *Journal of Development Studies* 45: 1684-1706.
- Gitlin, T. 1980. *The Whole World is Watching: Mass Media in the Making and Unmaking of the New Left*. University of California Press: Berkeley.

- Glaser, B. and Strauss, A. 1967. *The Discovery of Grounded Theory: Strategies for Qualitative Research*. Aldine: Chicago.
- Glover, D., Sumberg, J. and Andersson, J. 2016. The Adoption Problem; or Why We Still Understand to Little about Technological Change in African Agriculture. *Outlook on Agriculture* 45: 3-6.
- GoE. 2014. *The Structure and Division of Power*. <http://www.ethiopia.gov.et/the-structure-and-division-of-power>
- Goldman, M. 2005. *Imperial Nature: The World Bank and Struggles for Social Justice in the Age of Globalization*. Yale University Press: New Haven.
- Graham, J., Rashid, S. and Malek, M. 2012. *Disaster Response and Emergency Risk Management in Ethiopia*. In *Food and Agriculture in Ethiopia*, edited by P. Dorosh and S. Rashid. University of Pennsylvania Press: Philadelphia.
- Gramsci, A. 1971. *Prison Notebooks: Selections from the Prison Notebooks of Antonio Gramsci*. Edited and translated by Q. Hoare and G. N. Smith. International Publishers: New York.
- Gramsci, A. 1975. *Letters from Prison* (translated and edited by L. Lawner). Jonathan Cape: London.
- Gray, L. and Dowd-Urbe, B. 2013. A Political Ecology of Socio-Economic Differentiation: Debt, Inputs and Liberalization Reforms in Southwestern Burkina Faso. *Journal of Peasant Studies* 40(4): 683-702.
- Grobler, W. C. J. 2016. Perceptions of Poverty: A Study of Food Secure and Food Insecure Households in an Urban Area in South Africa. *Procedia Economics and Finance* 35: 224-231.
- Gudina, M. 2003. *Ethiopia: Competing Ethnic Nationalisms and the Quest for Democracy 1960-2000*. Shaker Publishing: Maastricht.
- Guerin, I., D'Espallier, B. and Venkatasubramanian, G. 2013. Debt in Rural South India: Fragmentation, Social Regulation and Discrimination. *Journal of Development Studies* 49(9): 1155-1171.

- Guest, G., Bunce, A. and Johnson, L. 2006. How Many Interviews are Enough? An Experiment with Data Saturation and Variability. *Field Methods* 18: 59—82.
- Guthiga, P. and Newsham, A. 2011. Meteorologists Meeting Rainmakers: Indigenous Knowledge and Climate Policy Processes in Kenya. *IDS Bulletin* 42(3): 104-109.
- Gutierrez, G. 1971. *A Theology of Liberation: History, Politics, Salvation*. Orbis: Maryknoll.
- Hagos, H. G. and Holden, S. 2013b. Links between Tenure Security and Food Security: Evidence from Ethiopia. IFPRI Discussion Paper 01295. IFPRI: Washington.
- Hagos, H.G. and Holden, S. 2013a. Efficiency and Productivity Differential Effectives of Land Certification Program in Ethiopia. IFPRI Discussion Paper 01295. IFPRI: Washington.
- Hallam, D. 2013. Overview. In *The Global Farms Race: Land Grabs, Agricultural Investment and the Scramble for Food Security*, edited by Kugelman and Levenstein. Island Press: Washington.
- Hallegatte, S., Bangalore, M., Bonzanigo, L., Fay, M., Kane, T., Narloch, U., Rozenberg, J., Treguer, D. and Vogt-Schilb, A. 2016. Shock Waves: Managing the Impacts of Climate Change on Poverty. *Climate Change and Development Series*. Washington, DC: World Bank.
- Hamm, M. W. and Bellows, A. C. 2003. Community Food Security and Nutrition Educators. *Journal of Nutrition Education* 35: 37-43.
- Hammer, J. 2016. Once a Bucknell Professor, Now the Commander of an Ethiopian Rebel Army. <http://www.nytimes.com/2016/09/04/magazine/once-a-bucknell-professor-now-the-commander-of-an-ethiopian-rebel-army.html>
- Hammond, L. 2008. Strategies of Invisibilization: How Ethiopia's Resettlement Programme Hides the Poorest of the Poor. *Journal of Refugee Studies* 21(4): 517-536.

- Handino, M. L. 2014. 'Green Famine' in Ethiopia: Understanding the Causes of Increasing Vulnerability to Food Insecurity and Policy Responses in the Southern Ethiopian Highlands. Doctoral thesis submitted to the University of Sussex.
- Hardt, M. and Negri, A. 2004. *Multitude: War and Democracy in the Age of Empire*. Penguin: New York.
- Hathaway, T. 2008. What Cost Ethiopia's Dam Boom? A Look Inside the Expansion of Ethiopia's Energy Sector. *International Rivers: Berkeley*.
- Hayden, S. 2016. Ethiopia's Battle for Land Reforms Could Lead to Civil War: Opposition Leader. www.reuters.com/article/us-ethiopia-landrights-violence-idUSKCN10M12X
- Headey, D., Dereje, M. and Taffesse, A. S. 2014. Land Constraints and Agricultural Intensification in Ethiopia: A Village-level Analysis of High-potential Areas. *Food Policy* 48: 129-141.
- Headey, D., Dereje, M., Ricker-Gilbert, J., Josephson, A., Taffesse, A. S. 2013. Land Constraints and Agricultural Intensification in Ethiopia: A Village-Level Analysis of High Potential Areas. ESSP Working Paper 58, International Food Policy and Research Institute: Washington.
- Headey, D., Taffesse, A. S. and You, L. 2014. Diversification and Development in Pastoralist Ethiopia. *World Development* 56: 200-213.
- Helland, J. 2006. Pastoral Land Tenure in Ethiopia. Paper presented at the Colloque International, Les Frontieres de la Question Fonciere – At the Frontier of Land Issues, Montpellier, France.
- Hill, R. V. and Porter, C. 2015. Shocks, Safety-nets and Vulnerability to Poverty in Ethiopia. www.researchgate.net/publication/281774460
- Hirvonen, K., Taffesse, A. S. and Worku, I. 2015. Seasonality and Household Diets in Ethiopia. Working Paper 74. International Food Policy Research Institute: Washington.

- Hoddinott, J. 1999. Operationalizing Household Food Security in Development Projects. International Food Policy Research Institute: Washington.
- Holden, S. and Bezu, S. 2016. Preferences for Land Sales Legalization and Land Values in Ethiopia. *Land Use Policy* 52: 410-421.
- Holden, S. and Ghebru, H. 2016. Land Rental Market Legal Restrictions in Northern Ethiopia. *Land Use Policy* 55: 212-221.
- Holden, S. and Yohannes, H. 2001. Land Redistribution, Tenure Insecurity, and Intensity of Production: A Study of Farm Households in Southern Ethiopia. CAPRI Working Paper No. 21. International Food Policy Research Institute: Washington.
- Holden, S., Bezu, S. and Tilahun, M. 2016. How Pro-poor are Land Rental Markets in Ethiopia? Norwegian University of Life Science, Centre for Land Tenure Studies Report.
- Holden, S., Deininger, K. and Ghebru, H. 2011. Tenure Insecurity, Gender, Low-cost Land Certification and Land Rental Market Participation in Ethiopia. *J. Develop. Stud.* 47(1): 31-47.
- Holden, S., Shiferaw, B. and Pender, J. 2005. Policy Analysis for Sustainable Land Management and Food Security in Ethiopia. International Food Policy Research Institute: Washington.
- Holmes, R. and Jones, R. 2010. Gender Inequality, Risk and Vulnerability in the Rural Economy. ESA Working Paper No. 11-13. Food and Agriculture Organization: Rome.
- Holmgren, D. 2002. Permaculture. Holmgren Design Services: Victoria.
- Holt-Gimenez, E. and Shattuck, A. 2011. Food Crises, Food Regimes and Food Movements: Rumbblings of Reform or Tides of Transformation? *Journal of Peasant Studies* 38(1): 109-144.
- HRW. 2010a. "One Hundred Ways of Putting Pressure" Violations of Freedom of Expression and Association in Ethiopia. Human Rights Watch: New York.

- HRW. 2010b. *Development Without Freedom: How Aid Underwrites Repression in Ethiopia*. Human Rights Watch: New York.
- HRW. 2012a. “Waiting here for Death”: Displacement and “Villagization” in Ethiopia’s Gambella Region. Human Rights Watch: Washington.
- HRW. 2012b. *Prominent Muslims Detailed in Crackdown*.
www.hrw.org/news/2012/08/15/ethiopia-prominent-muslims-detained-crackdown
- HRW. 2016. *Ethiopia: No Let Up in Crackdown on Protests*. February 21, Human Rights Watch: Nairobi.
- Hundie, B. and Padmanabhan, M. 2008. *The Transformation of the Afar Commons in Ethiopia*. CAPRI Working Paper No. 87. IFPRI: Washington.
- Hurd, W. 2013. *Understanding Land Investment Deals in Africa: Ignoring Abuse in Ethiopia*. Oakland Institute: Oakland, CA.
- Hurlbert, M. and Gupta, J. 2015. *The Split Ladder of Participation: A Diagnostic, Strategic, and Evaluation Tool to Assess When Participation is Necessary*. *Environmental Science & Policy* 50: 100-113.
- Husmann, C. 2015. *Marginality as a Root Cause of Poverty: Identifying Marginality Hotspots in Ethiopia*. *World Development* 78: 420-435.
- Hyden, G. 2005. *Why Do Things Happen the Way They Do? A Power Analysis of Tanzania*.
http://xa.yimg.com/kq/groups/20674633/1114493356/name/Goran%20Hyden_Power%20Analysis_Tanzania.pdf
- IDRC. 2016. *Livestock Vaccine Innovation Fund*. www.idrc.ca/en/initiative/livestock-vaccine-innovation-fund
- IDS. 2016. *Using Participatory Action Research to Improve Development Practice*.
<http://www.ids.ac.uk/events/using-participatory-action-research-to-improve-development-practice>

- IFAD. 2009. Food Security: A Conceptual Framework. International Fund for Agricultural Development: Rome.
- IFPRI. 2013. Highlights of Recent IFPRI Food Policy Research for DFID. IFPRI: Washington.
- IFRC. 2007. Global Food Security Assessment Guidelines. International Federation of Red Cross and Red Crescent Societies: Geneva.
- IRIN. 2004. Ethiopia: Rural Resettlement Programme Criticised.
<http://www.irinnews.org/Report/48797/ETHIOPIA-Rural-resettlement-programme-criticised>
- ISSC, IDS and UNESCO. 2016. World Social Science Report 2016, Challenging Inequalities: Pathways to a Just World. UNESCO: Paris.
- Jayamohan, M. K. and Kitesa, A. T. 2014. Gender and Poverty – An Analysis of Urban Poverty in Ethiopia. *Development Studies Research* 1: 233-243.
- Jerven, M. 2013. *Poor Numbers: How We Are Misled by African Development Statistics and What to Do About it*. Cornell University Press: Ithaca.
- Josephson, A. L., Ricker-Gilbert, J. and Florax, R. 2014. How Does Population Density Influence Agricultural Intensification and Productivity? Evidence from Ethiopia. *Food Policy* 48: 142-152.
- Kabeer, N. 2010. *Can the MDGs Provide a Pathway to Social Justice? The Challenge of Intersecting Inequalities*. United Nations Development Programme: New York.
- Kahneman, D. and Tversky, A. 1979. Prospect Theory: An Analysis of Decision Under Risk. *Econometrica* 47: 263-292.
- Kalanda-Joshua, M., Ngongondo, C., Chipeta, L. and Mpembeka, F. 2011. Integrating Indigenous Knowledge with Conventional Science: Enhancing Localised Climate and Weather Forecasts in Nessa, Mulanje, Malawi. *Physics and Chemistry of the Earth* 36(14-15): 996-1003.
- Kant, I. 1781 (2008 reprint). *A Critique of Pure Reason*. Penguin: New York.

- Karunamoorthi, K., Mohammed, M. and Wassie, F. 2012. Knowledge and Practices and Farmers with Reference to Pesticide Management: Implications on Human Health. *Archives of Environmental & Occupational Health* 67(2): 109-116.
- Kassa, T. 2013. The Impact of the PSNP on Food Security in Selected Kebeles of Enebse Sar Midir District East Gojjam Zone, Amhara National Regional State. In *Food Security, Safety Nets and Social Protection in Ethiopia* edited by D. Rahmato, A. Pankhurst and J-G van Uffelen. Forum for Social Studies: Addis Ababa.
- Kassie, B. T., Asseng, S., Rotter, R. P., Hengsdijk, H., Ruane, A. C., Van Ittersum, M. K. 2015. Exploring Climate Change Impacts and Adaptation Options for Maize Production in the Central Rift Valley of Ethiopia Using Different Climate Change Scenarios and Crop Models. *Climate Change* 129(1): 145-158.
- Kassie, M., Zikhali, P., Pender, J. and Kohlin, G. 2010. The Economics of Sustainable Land Management Practices in the Ethiopian Highlands. *Journal of Agricultural Economics* 61(3): 605-627.
- Katane, G. O. 2013. An Assessment of the PSNP in Selected Kebeles of Konso Special Woreda, Southern Nations, Nationalities, and Peoples Regional State. In *Food Security, Safety Nets and Social Protection in Ethiopia* edited by D. Rahmato, A. Pankhurst and J-G van Uffelen. Forum for Social Studies: Addis Ababa.
- Kebede, B. 2002. Land Tenure and Common Pool Resources in Rural Ethiopia: A Study Based on Fifteen Sites. *African Development Bank* 113-149.
- Kebede, Y., Gunjal, K. and Coffin, G. 1990. Adoption of New Technologies in Ethiopian Agriculture: The Case of Tegulet-Bulga District, Shoa Province. *Agricultural Economics* 4: 27-43.
- Kedebe, G. 2013. Political Corruption: Political and Economic State Capture in Ethiopia. *European Scientific Journal* 9(35): 250-279.
- Kefale, A. 2014. *Federalism and Ethnic Conflict in Ethiopia: A Comparative Regional Study*. Routledge: New York.
- Kelilo, A., Ketema, M. and Kedir, A. 2014. The Contribution of Small Scale Irrigation Water Use to Households Food Security in Gorogutu District of Oromia Regional

- State, Ethiopia. *International Journal of Economics and Empirical Research* 2(6): 221-228.
- Kendall, J. and Singh, N. 2012. Performance of Internet Kiosks in Rural India: Gender, Caste and Location. *Review of Market Integration* 4: 1-43.
- Kenny, C. 2011. *Getting Better: Why Global Development is Succeeding – And How We Can Improve the World Even More*. Basic Books: New York.
- Ketsela, Y. 2006. Attendant Issues in the Current Agricultural Extension Programme. In *Ethiopia: Development Policies, Trends, Changes and Continuities*, edited by K. Berhanu and D. Fantaye. Addis Ababa University Press: Addis Ababa.
- Kibret, S., Wilson, G. G., Tekie, H. and Petros, B. 2014. Increased Malaria Transmission around Irrigation Schemes in Ethiopia and the Potential of Canal Water Management for Malaria Vector Control. *Malaria Journal* 13: 360 (1-12).
- Kilroy, G. 2015. A Review of the Biophysical Impacts of Climate Change in Three Hotspot Regions in Africa and Asia. *Regional Environmental Change* 15: 771-782.
- Kingdon, J. 1984. *Agendas, Alternatives, and Public Policies*. Little, Brown: Boston.
- Kneen, C. 2012. *The People's Food Policy Project: Introducing Food Sovereignty in Canada*. Food Secure Canada: Montreal.
- Kotu, B. H. and Admassie, A. 2015. Potential Impact of Improved Varieties on Poverty Reduction: A Case Study of Selected Cereal Crops in Two Districts of Ethiopia. *International Conference of Agricultural Economists*, August 8-14, Milan, Italy.
- Krishna, A. 2004. Escaping Poverty and Becoming Poor: Who Gains, Who Loses, and Why? *World Development* 32(1): 121-136.
- Krishna, A. 2005. *Stages of Progress: A Community-Based Methodology for Defining and Understanding Poverty*. <http://www2.sanford.duke.edu/krishna/SoP.pdf>
- Krishna, A. 2010. *One Illness Away*. Oxford University Press: New York.
- Kubik, Z. and Maurel, M. 2016. Weather Shocks, Agricultural Production and Migration: Evidence from Tanzania. *The Journal of Development Studies* 52(5): 665-680.

- Kugelman, M. and Levenstein, S. (Eds). 2013. *The Global Farms Race: Land Grabs, Agricultural Investment and the Scramble for Food Security*. Island Press: Washington.
- La Via Campesina. 2011. *The International Peasant's Voice*. <http://viacampesina.org/en/index.php/organisation-mainmenu-44>
- La Via Campesina. 2013. *Using the Global Strategic Framework for Food Security and Nutrition to Promote and Defend the People's Right to Adequate Food*. La Via Campesina: Jakarta.
- Laekemariam, F. and Gidago, G. 2012. Response of Maize (*Zea mays* L.) to Integrated Fertilizer Application in Wolaita, South Ethiopia. *Advances in Life Science and Technology* 5: 21-30.
- Land Matrix. 2013. Ethiopia. <http://www.landmatrix.org/>
- Lansing, J. S., Schoenfelder, J. and Scarborough, V. 2006. Rappaport's Rose: Structure, Agency and Historical Contingency in Ecological Anthropology (p. 325-357). In *Reimagining Political Ecology* edited by A. Biersack and J. B. Greenberg. Duke University Press: Durham.
- Lautze, S. and D. Maxwell. 2007. Why do Famines Persist in the Horn of Africa? Ethiopia 1999-2003. In *The New Famines: Why Famines Persist in an Era of Globalization*, edited by S. Devereux. Routledge: New York.
- Lavers, T. 2012. Land Grab as Development Strategy? The Political Economy of Agricultural Investment in Ethiopia. *The Journal of Peasant Studies* 39(1): 105-132.
- Levy, D. L. 2000. Applications and Limitations of Complexity Theory in Organization Theory and Strategy. In *Handbook of Strategic Management, Second Edition* edited by J. Rabin, G. J. Miller and W. B. Hildreth, Marcel Dekker Inc.: New York.
- Lewis, A. 1955. *The Theory of Economic Growth*. Unwin Hyman: London.
- Li, T. 2007. *The Will to Improve: Governmentality, Development, and the Practice of Politics*. Duke University Press: Durham.

- Li, T. 2014. *Land's End: Capitalist Relations on an Indigenous Frontier*. Durham: Duke University Press.
- Li, X. 1996. Making Sense of the Right to Food. In *World Hunger and Morality, 2nd edition*, edited by W. Aiken and H. LaFollette. Prentice-Hall: Upper Saddle River.
- Limenh, B. and Tefera, T. 2014. Knowledge Gaps in Potato Technology Adoption: The Case of Central Highlands of Ethiopia. *Journal of Agricultural Extension and Rural Development* 6(8): 339-346.
- Lin, J. Y. 1990. Collectivization and China's Agricultural Crisis in 1959-1961. *Journal of Political Economy* 98(6): 1228-1252.
- Loening, J. L., Durevall, D. and Birru, Y. A. 2009. Inflation Dynamics and Food Prices in an Agricultural Economy: The Case of Ethiopia. Policy Research Working Paper 4949. Washington, D.C.: The World Bank.
- Loevinsohn, M. 2012. Seasonal Hunger, Famine and the Dynamics of HIV in Malawi (p. 56-75). In *Seasonality, Rural Livelihoods and Development* edited by S. Devereux, R. Sabates-Wheeler and R. Longhurst. Earthscan: New York.
- Ludi, E., Tesfaye, K. and Levine, S. 2011. Preparing for the Future? Understanding the Influence of Development Interventions on Adaptive Capacity at Local Level in Ethiopia. *Africa Climate Change Resilience Alliance* http://community.eldis.org/.5a35bbfb/Ethiopia_Synthesis_Report.pdf
- Lutz, A. F., ter Maat, H. W., Biemans, H., Shrestha, A. B., Wester, P. and Immerzeel, W. W. 2016. Selecting Representative Climate Models for Climate Change Impact Studies: An Advanced Envelope-based Selection Approach. *International Journal of Climatology* doi: 10.1002/joc.4608
- Mahadevan, R. and Hoang, V. 2015. Is there a Link between Poverty and Food Security? *Social Indicators Research* DOI: 10.1007/s11205-015-1025-3
- Mains, D. 2012. *Hope is Cut: Youth, Unemployment and the Future in Urban Ethiopia*. Temple University Press: Philadelphia.

- Makki, F. 2014. Development by Dispossession: Terra Nullius and the Socio-ecology of New Enclosures in Ethiopia. *Rural Sociology* 79: 79-103.
- Martins, V., Florencio, T., Grillo, L., Franco, M., Martins, P., Clemente, A., Santos, C., Vieira, M. and Sawaya, A. 2011. Long-lasting Effects of Undernutrition. *International Journal of Environmental Research and Public Health* 8(6): 1817-1846.
- Masset, E. 2012. The Stabilizing Effect of Irrigation on Seasonal Expenditure: Evidence from Rural Andhra Pradesh (p. 117-130). In *Seasonality, Rural Livelihoods and Development* edited by S. Devereux, R. Sabates-Wheeler and R. Longhurst. Earthscan: New York.
- Maxwell, D., Vaitla, B. and Coates, J. 2014. How Do Indicators of Household Food Insecurity Measure Up? An Empirical Comparison from Ethiopia. *Food Policy* 47: 107-116.
- Maxwell, D., Vaitla, B., Tesfay, G. and Abadi, N. 2013. Resilience, Food Security Dynamics, and Poverty Traps in Northern Ethiopia. Feinstein International Center, Tufts University: Somerville.
- Maxwell, S. and Smith, M. 1992. Household Food Security: A Conceptual Review. In *Household Food Security: Concepts, Indicators, Measurements: A Technical Review* edited by S. Maxwell and T. Frankenberger. IFAD/UNICEF: Rome/New York.
- McArthur, J. W. 2016. What Does “Agriculture” Mean Today? Assessing Old Questions with New Evidence. Brookings Institute: Washington.
- McCann, J. C. 1995. People of the Plow: An Agricultural History of Ethiopia, 1800-1990. University of Wisconsin Press: Madison.
- Meadows, D. 2008. Thinking in Systems (edited by Diana Wright). Chelsea Green Publishing Company: White River Junction, VT.
- Meadows, D. H., Meadows, D. L., Behrens III, W., Naill, R., Randers, J. and Zahn, E. 1974. Dynamics of Growth in a Finite World. Wright-Allen Press: Cambridge.

- Megersa, B., Markemann, A., Angassa, A., Ogutu, J. O., Piepho, H.-P. and Zarate, A. V. 2014. Livestock Diversification: An Adaptive Strategy to Climate and Rangeland Ecosystem Changes in Southern Ethiopia. *Human Ecology* 42: 509-520.
- Meijer, S. S., Catacutan, D., Ajayi, O. C., Sileshi, G. W. and Nieuwenhuis, M. 2015. The Role of Knowledge, Attitudes and Perceptions in the Uptake of Agricultural and Agroforestry Innovations among Smallholder Farmers in Sub-Saharan Africa. *International Journal of Agricultural Sustainability* 13: 40-54.
- Mekonen, S., Lachat, C., Ambelu, A., Steurbaut, W., Kolsteren, P., Jacxsens, L., Wondafrash, M., Houbraken, M. and Spanoghe, P. 2015. Risk of DDT Residue in Maize Consumed by Infants as Complementary Diet in Southwest Ethiopia. *Science of the Total Environment* 511: 454-460.
- Mekonnen, S. 2012. Rights of Citizens and Foreign Investors to Agricultural Land under the Land Policy and Laws of Ethiopia. *Haramaya Law Review* 1: 31-42.
- Mendoza, R. U. 2008. Why do the Poor Pay More? Exploring the Poverty Penalty Concept. *Journal of International Development* 23: 1-28.
- Mengistu, A. 2006. Ethiopia. Food and Agriculture Organization: <http://www.fao.org/ag/AGP/AGPC/doc/counprof/ethiopia/ethiopia.htm>
- Mesfin, T. and Obsa, T. 1994. Ethiopian Traditional Veterinary Practices and their Possible Contribution to Animal Production and Management. *Scientific and Technical Review of the Office International des Epizooties* 13(2): 417-424.
- Messer, E. and M. Cohen. 2007. The Human Right to Food as a U.S. Nutrition Concern, 1976-2006. IFPRI Discussion Paper 00731. International Food Policy Research Institute: Washington.
- Mezgebe, D. 2015. Decentralized Governance under Centralized Party Rule in Ethiopia: The Tigray Experience. *Regional & Federal Studies* 25(5): 473-490.
- MFA, UNCDF and UNDP. 2007. Emerging Regions Development Programme. Government of Ethiopia, Ministry of Federal Affairs: Addis Ababa.

- Mheen-Sluijer, J. 2010. Ethiopian Commodity Exchange and Contract Farming Arrangements: Complementing Institutions. Wageningen International: Droevendaalsesteeg.
- Millikan, M. F. and Rostow, W. W. 1957. A Proposal: Key to an Effective Foreign Policy. Harper: New York.
- Million, T. 2014. Fertilizer Adoption, Credit Access, and Safety Nets in Rural Ethiopia. *Agricultural Finance Review* 74(3): 290-310.
- Mills, C. W. 1956. *The Power Elites*. Oxford University Press: New York.
- Minten, B., Engida, E. and Tamru, S. 2016. How Big are Post-harvest Losses in Ethiopia? Evidence from Teff. ESSP Working Paper 93, International Food Policy Research Institute: Washington.
- Mintesinot, B., Verplancke, H. Van Ranst, E. and Mitiku, H. 2004. Examining Traditional Irrigation Methods, Irrigation Scheduling and Alternate Furrows Irrigation on Vertisols in Northern Ethiopia. *Agricultural Water Management* 64: 17-27.
- Mintz, S. W. 1985. *Sweetness and Power: The Place of Sugar in Modern History*. Penguin Books: New York.
- Mollison, B. 1991. *Introduction to Permaculture*. Tagari Publications: Sisters Creek.
- Moorehead, A. 1962. *The Blue Nile*. Four Square: London.
- Moseley, W. G. 2005. Global Cotton and Local Environmental Management: The Political Ecology of Rich and Poor Small-hold Farmers in Southern Mali. *Geographic Journal* 171: 36-55.
- Muche, M., Endalew, B. and Koricho, T. 2014. Determinants of Household Food Security among Southwest Ethiopia Rural Households. *Asian Journal of Agricultural Research* 1-11.
- Muluaalem, T. and Walle, T. 2014. Farmers Indigenous Knowledge and Assessment of Enset (*Ensete ventricosum* Welw. Cheesman) Cultivars for Major Insect Pests in

- Ojojia Water Shade Kembata-Tembaro Zone, South Ethiopia. *Sky Journal of Agricultural Research* 3(6): 112-119.
- Mulualem, T., WeldeMichael, G. and Belachew, K. 2013. Genetic Diversity of Taro (*Colocasia esculenta* (L.) Schott) Genotypes in Ethiopia Based on Agronomic Traits. *Agriculture and Veterinary Sciences* 1(2): 23-30.
- Munro-Hay, S. 1991. *Aksum: An African Civilization of Late Antiquity*. Edinburgh University Press: Edinburgh.
- Munro-Hay, S. 2002. *Ethiopia: The Unknown Land: A Cultural and Historical Guide*. I.B. Tauris: New York.
- Nash, R., Hudson, A. and Luttrell, C. 2006. *Mapping Political Context: A Toolkit for Civil Society Organizations*. Research and Policy in Development Programme, Overseas Development Institute: London.
- Nasir, M. and Hundie, B. 2014. The Effect of Off Farm Employment on Agricultural Production and Productivity: Evidence from Gurage Zone of Southern Ethiopia. *Journal of Economics and Sustainable Development* 5(23): 85-98.
- NBE [National Bank of Ethiopia]. 2014. *Annual Report 2013/14*. Addis Ababa: National Bank of Ethiopia.
- ND-GAIN. 2016. *Country Rankings: Vulnerability and Readiness*: <http://index.gain.org/ranking>
- Ndegwa, S. 1996. *The Two Faces of Civil Society: NGOs and Politics in Africa*. Kumarian Press: West Hartford.
- NEBE. 2015. *Official Results of the 24th May 2015 General Election, National Electoral Board of Ethiopia*: <http://www.electionethiopia.org/en/>
- Nega, B. 2002. *Land Tenure and Agricultural Development in Ethiopia*. Ethiopian Policy Research Institute: Addis Ababa.
- Negash, M. and Swinnen, J. 2013. Biofuels and Food Security: Micro-evidence from Ethiopia. *Energy Policy* 61: 963-976.

- Ng, F. and Aksoy, M. 2008. Who are the Net Food Importing Countries? World Bank Policy Research Working Paper 4457.
- Nigatu, A. W., Bratveit, M. and Moen, B. E. 2016. Self-reported Acute Pesticide Intoxications in Ethiopia. *BMC Public Health* 16: 575 (1-8).
- Nino-Zarazua, M., Barrientos, A., Hickey, S. and Hulme, D. 2012. Social Protection in Sub-Saharan Africa: Getting the Politics Right. *World Development* 40: 163-176.
- Nolan, P. 1976. Collectivization in China: Some Comparisons with the USSR. *Journal of Peasant Studies* 3(2): 192-220.
- Nuansoi, W. 2013. The Study on Farmers' Debt, Loan Repayment and Guidelines for Debt Settlement in the South of Thailand. *International Journal of Agriculture and Food Science Technology* 4(8): 835-840.
- Nyssen, J., Frankl, A., Haile, M., Hurni, H., Descheemaeker, K., Crummey, D., Ritler, A., Portner, B., Nievergelt, B., Moeyersons, J., Munro, N., Deckers, J., Billi, P. and Poesen, J. 2014. Environmental Conditions and Human Drivers for Changes to North Ethiopian Mountain Landscapes over 145 years. *Science and the Total Environment* 485-486: 164-179.
- Nyssen, J., Haile, M., Moeyersons, J., Poesen, J. and Deckers, J. 2000. Soil and Water Conservation in Tigray (Northern Ethiopia): The Traditional Daget Technique and its Integration with Introduced Techniques. *Land Degradation & Development* 11: 199-208.
- Nyssen, J., Haile, M., Poesen, J., Deckers, J. and Moeyersons, J. 2001. Removal of Rock Fragments and its Effect on Soil Loss and Crop Yield, Tigray, Ethiopia. *Soil Use and Management* 17: 179-187.
- Oakland Institute. 2011. Understanding Land Investment Deals in Africa - Country Report: Ethiopia. Oakland Institute: Oakland.
- Oakland Institute. 2013. Omo: Local Tribes Under Threat. Oakland Institute: Oakland.
- OCHA. 2016. Ethiopia. <http://www.unocha.org/eastern-africa/about-us/about-ocha-eastern-africa/ethiopia>

- OECD. 2014. Ethiopia. <http://atlas.media.mit.edu/en/profile/country/eth/>
- OECD - DAC. 2016. Ethiopia. <http://www.oecd.org/dac/stats>
- OECD. 2005. Lessons Learned on the Use of Power and Drivers of Change Analyses in Development Co-operation. <http://web.iaincirebon.ac.id/ebook/moon/Econ-Dev/DOC82.pdf>
- Olango, T. M., Tesfaye, B., Catellani, M. and Pe, M. E. 2014. Indigenous Knowledge, Use and On-farm Management of Enset (*Enset ventricosum* (Welw.) Cheesman) Diversity in Wolaita, Southern Ethiopian. *Journal of Ethnobiology and Ethnomedicine* 10(41): 1-31.
- Oren, M. 2013. Too Certain to Invest? Government Credibility and Ethiopian Insurance Markets. Department of Political Science, UC San Diego.
- Ossome, L. 2014. Can the Law Secure Women's Rights to Land in Africa? Revisiting Tensions between Culture and Land Commercialization. *Feminist Economics* 20: 155-177.
- Paarlberg, B. 2010. *Food Politics: What Everyone Needs to Know*. Oxford University Press: Oxford.
- Pankhurst, R. 1985. *The History of Famines and Epidemics in Ethiopia Prior to the Twentieth Century*. Relief and Rehabilitation Commission: Addis Ababa.
- Pankhurst, R. 1990. *A Social History of Ethiopia*. Institute of Ethiopian Studies, Addis Ababa University: Addis Ababa.
- Pankhurst, R. 1997. *The Ethiopian Borderlands: Essays in Regional History from Ancient Times to the End of the 18th Century*. Red Sea Press: Asmara.
- Pankhurst, R. 1998. *The Ethiopians: A History*. Blackwell Publishers: Oxford.
- Percy, R. 2000. Capacity Building for Gender-sensitive Agricultural Extension Planning in Ethiopia. *Journal of Agricultural Education and Extension* 7: 21-30.
- Peterman, A., Behrman, J. and Quisumbing, A. 2010. A Review of Empirical Evidence on Gender Differences in Nonland Agricultural Inputs, Technology, and Services

in Developing Countries. International Food Policy Research Institute:
Washington.

- Piketty, T. 2014. *Capital in the Twenty-First Century* [Translated by A. Goldhammer]. Harvard University Press: Cambridge.
- Pimbert, M. 2008. *Towards Food Sovereignty: Reclaiming Autonomous Food Systems*. CAFS, IIED and RCC: London.
- Piven, F. F. and Cloward, R. A. 1977. *Poor People's Movements: Why they Succeed, How they Fail*. Vintage Books: New York.
- Planel, S. 2014. A View of A Bureaucratic Developmental State: Local Governance and Agricultural Extension in Rural Ethiopia. *Journal of Eastern African Studies* 8(3): 420-437.
- Powledge, F. 2012. Food Insecurity: An Overview. In *At Issue: Food Insecurity*, Edited by L. Gerdes. Greenhaven Press: New York.
- Provost, C. 2013. Migrants' Billions put Aid in the Shade. www.theguardian.com/global-development/2013/jan/30/migrants-billions-overshadow-aid
- Provost, C. 2014. Ethiopia Seed Bank's Novel Approach to Preserving Diversity Under Threat. www.theguardian.com/global-development/2014/feb/19/ethiopia-seed-bank-preserving-diversity-under-threat-g8-new-alliance
- Putnam, R. D. 1995. Bowling Alone: America's Declining Social Capital. *Journal of Democracy* 6: 65-78.
- Quisumbing, A. R., Meinzen-Dick, R., Raney, T. L., Croppenstedt, A., Behrman J. A. and Peterman, A. 2014. *Gender in Agriculture*. Springer: London.
- Ragasa, C., Berhane, G., Tadesse, F. and Taffesse, A. S. 2014. Gender Differences in Access to Extension Services and Agricultural Productivity. *Journal of Agricultural Education and Extension* 19(5): 437-468.
- Rahmato, D. 1992. *The Dynamics of Rural Poverty: Case Studies from a District in Southern Ethiopia*. Monograph 2/92. CODESRIA: Dakar.

- Rahmato, D. 1995. Resilience and Vulnerability: Enset Agriculture in Southern Ethiopia. *Journal of Ethiopian Studies* 28(1): 23-51.
- Rahmato, D. 2004. Searching for Tenure Security? The Land System and New Policy Initiatives in Ethiopia. Forum for Social Studies Discussion Paper No. 12. Forum for Social Studies: Addis Ababa.
- Rahmato, D. 2007. Development Interventions in Wollaita, 1960s-2000s: A Critical Review. Forum for Social Studies, Monograph No. 4: Addis Ababa.
- Rahmato, D. 2011. Land to Investors: Large-scale Land Transfers in Ethiopia. Forum for Social Studies: Addis Ababa.
- Rahmato, D. 2013. Food Security and Safety Nets: Assessment and Challenges. In *Food Security, Safety Nets and Social Protection in Ethiopia* edited by D. Rahmato, A. Pankhurst and J.-G. van Uffelen. Forum for Social Studies: Addis Ababa.
- Rahmato, D., Pankhurst, A. and van Uffelen, J.-G, eds. 2013. Food Security, Safety Nets and Social Protection in Ethiopia. Forum for Social Studies: Addis Ababa.
- Ramalingam, B. 2013. Aid on the Edge of Chaos: Rethinking International Cooperation in a Complex World. Oxford University Press: Oxford.
- Randall, S. and Coast, E. 2015. Poverty in African Households: The Limits of Survey and Census Representations. *Journal of Development Studies* 51: 162-177.
- Rawls, J. 1958. Justice as Fairness. *Philosophical Review* 67: 164-194.
- Rawls, J. 1971. A Theory of Justice. Harvard University Press: Cambridge.
- Rawls, J. 1999. The Law of Peoples. Harvard University Press: Cambridge.
- ReliefWeb. 2016. Ethiopia: Drought – 2015-2016. <http://reliefweb.int/disaster/dr-2015-000109-eth>
- Riddell, R. 2007. Does Foreign Aid Really Work? Oxford University Press: New York.
- Rigg, J. 2006. Land, Farming, Livelihoods, and Poverty: Rethinking the Links in the Rural South. *World Development* 34(1): 180-202.

- Rivera, J., Hotz, C., Gonzalez-Cossio, T., Neufeld, L. and Garcia-Guerra, A. 2003. The Effect of Micronutrient Deficiencies on Child Growth: A Review of Results from Community-based Supplementation Trials. *Journal of Nutrition* 133(11): 4010S-4020S.
- Rose, P. and Al-Samarrai, S. 2001. Household Constraints on Schooling by Gender: Empirical Evidence from Ethiopia. *Comparative Education Review* 45: 36-63.
- Rostow, W. W. 1960. *The Stages of Economic Growth: A Non-Communist Manifesto*. Cambridge University Press: Cambridge.
- Roth, M. 1988. *Somalia Land Policies and Tenure Impacts*.
http://pdf.usaid.gov/pdf_docs/pnabb822.pdf
- Roy, A., Negron-Gonzales, G., Opoku-Agyemang, K. and Talwalker, C. 2016. *Encountering Poverty: Thinking and Acting in an Unequal World*. University of California Press: Oakland.
- Sabatier, P. A. 1988. An Advocacy Coalition Model of Policy Change and the Role of Policy Oriented Learning Therein. *Policy Science* 21: 129-168.
- Sabatier, P. A. and Jenkins-Smith, H. 1993. *Policy Change and Learning: An Advocacy Coalition Approach*. Westview Press: Boulder.
- Sabatier, P. A. and Jenkins-Smith, H. 1999. The Advocacy Coalition Framework: An Assessment (p. 117-166). In *Theories of the Policy Process* edited by P. A. Sabatier. Westview Press: Boulder.
- Sachs, J. 2005. *The End of Poverty: Economic Possibilities for Our Time*. Penguin: New York.
- Sahn, D. 1989. *Seasonal Variability in Third World Agriculture: The Consequences for Food Security*. Johns Hopkins University Press: London.
- Sait, S. and Lim, H. 2006. *Land, Law and Islam: Property and Human Rights in the Muslim World, Volume 1*. Zed Books: New York.

- Samberg, L. H., Fishman, L. and Allendorf, F. W. 2013. Population Genetic Structure in a Social Landscape: Barley in a Traditional Ethiopian Agricultural System. *Evolutionary Applications* 6: 1133-1145.
- Sana, M. Stecklov, G. and Weinreb, A. 2012. Local or Outsider Interviewer? An Experimental Evaluation. Submitted to the Annual Meeting of the Population Association of America, San Francisco, 3-5 May 2012.
- Sandefur, J. and Glassman, A. 2015. The Political Economy of Bad Data: Evidence from African Survey & Administrative Statistics. *Journal of Development Studies* 51: 116-132.
- Schock, K. 2015. *Civil Resistance Today*. Polity: Cambridge.
- Scott, J. C. 1985. *Weapons of the Weak: Everyday Forms of Peasant Resistance*. Yale University Press: New Haven.
- Scott, J. C. 1998. *Seeing Like a State: How Certain Schemes to Improve the Human Condition Have Failed*. Yale University Press: Yale.
- Scott, J. C. 2009. *The Art of Not Being Governed: An Anarchist History of Upland Southeast Asia*. Yale University Press: New Haven.
- Segers, K., Dessein, J., Nyssen, J., Haile, M. and Deckers, J. 2008. Developers and Farmers Intertwining Interventions: The Case of Rainwater Harvesting and Food-for-Work in Degua Temben, Tigray, Ethiopia. *International Journal of Agricultural Sustainability* 6(3): 173-182.
- Segers, K., Dessein, J., Hagberg, S., Develtere, P., Haile, M. and Deckers, J. 2009. Be Like Bees – The Politics of Mobilizing Farmers for Development in Tigray, Ethiopia. *African Affairs* 108(430): 91-109.
- Sen, A. 1981. *Poverty and Famines: An Essay on Entitlement and Deprivation*. Oxford University Press: New York.
- Sen, A. 1983. *Choice, Welfare, and Measurement*. Harvard University Press: Cambridge.
- Sen, A. 1985. *Commodities and Capabilities*. Oxford University Press: New York.

- Sen, A. 1990. Individual Freedom as a Social Commitment. New York Review of Books, June 14th.
- Sen, A. 1999. Development as Freedom. Anchor Books: New York.
- Sen, A. 2009. The Idea of Justice. Harvard University Press: Cambridge.
- Sen, A. and J. Dreze. 1990. The Political Economy of Hunger. Oxford University Press: Oxford.
- Sen, A. and J. Dreze. 1999. The Amartya Sen & Jean Dreze Omnibus. Oxford University Press: Oxford.
- Serneels, P. 2007. The Nature of Unemployment among Young Men in Urban Ethiopia. Review of Development Economics 11: 170-186.
- Shanin, T. 1997. The Idea of Progress. In *The Post-Development Reader*, edited by M. Rahnema and V. Bawtree. Zed Books: London.
- Shete, M. and Rutten, M. 2015. Impacts of Large-scale Farming on Local Communities' Food Security and Income Levels – Empirical Evidence from Oromia Region, Ethiopia. Land Use Policy 47: 282-292.
- Shipton, P. 1990. African Famines and Food Security: Anthropological Perspectives. Annual Review of Anthropology 19: 353-394.
- SIDA. 2005. Methods for Analysing Power – A Workshop Report. http://www.sida.se/contentassets/aa2a1e482af44911a07cd217698fde9e/methods-of-analysing-power---a-workshop-report_729.pdf
- Siyoum, A. D. 2013. The Importance of Labour for Food Security: Household Experiences in Ebinat Woreda, Amhara Region. In *Food Security, Safety Nets and Social Protection in Ethiopia* edited by D. Rahmato, A. Pankhurst and J-G van Uffelen. Forum for Social Studies: Addis Ababa.
- Smith, A. 1790 (1976 reprint). The Theory of Moral Sentiments. Clarendon Press: Oxford.
- Smith, L. 2008. The Politics of Contemporary Language Policy in Ethiopia. Journal of Developing Societies 24(2): 207-243.

- Smith, M., Pointing, J. and Maxwell, S. 1993. Household Food Security: Concepts and Definitions. Institute of Development Studies: Sussex.
- Soubbotina, T. 2000. Beyond Economic Growth: Meeting the Challenges of Global Development. World Bank: Washington.
- Spielman, D., Mekonnen, D. and Alemu, D. 2012. Seed, Fertilizer, and Agricultural Extension in Ethiopia. In *Food and Agriculture in Ethiopia*, edited by P. Dorosh and S. Rashid. University of Pennsylvania Press: Philadelphia.
- Stachowiak, S. 2009. Pathways for Change: 6 Theories about How Policy Change Happens. Organizational Research Services: Seattle.
- Stachowiak, S. 2013. Pathways for Change: 10 Theories in Inform Advocacy and Policy Change Efforts. Center for Evaluation Innovation: Washington.
- Stamoulis, K. and A. Zezza. 2003. A Conceptual Framework for National Agricultural, Rural Development, and Food Security Strategies and Policies. ESA Working Paper No. 03-17, Food and Agriculture Organization of the United Nations.
- Starn, O. 1991. Missing the Revolution: Anthropologists and War in Peru. *Cultural Anthropology* 6: 63-91.
- Stone, C. N. 1993. Urban Regimes and the Capacity to Govern: A Political Economy Approach. *Journal of Urban Affairs* 15: 1-28.
- Sulas, F., Madella, M. and French, C. 2009. State Formation and Water Resources Management in the Horn of Africa: The Aksumite Kingdom of the Northern Ethiopian Highlands. *World Archeology* 41(1): 2-15.
- Sumner, A and Tribe, M. 2008. International Development Studies: Theories and Methods in Research and Practice. SAGE: London.
- Sundaram, J. K. 2016. The MDGs and Poverty Reduction (p. 26-44). In *Poverty and the Millennium Development Goals* edited by A. Cimadamore, G. Koehler and T. Pogge. Zed Books: London.
- Tache, B. and Oba, G. 2009. Policy-driven Inter-ethnic Conflicts in Southern Ethiopia. *Review of African Political Economy* 36(121): 409-426.

- Tadesse, D., Jamieson, D. and Cochrane, L. 2015. Strengthening Public Health Supply Chains in Ethiopia: PEPFAR Supported Expansion of Access and Availability. *Development in Practice* 25(7): 1043-1056.
- Tadesse, M. 2014. Fertilizer Adoption, Credit Access, and Safety Nets in Rural Ethiopia. *Agricultural Finance Review* 74(3): 290-310.
- Taffesse, A. S., Dorosh P., Gemessa, S.A. 2012. Crop production in Ethiopia: Regional patterns and trends. In *Food and Agriculture in Ethiopia: Progress and Policy Challenges* edited by P. Dorosh and S. Rashid. University of Pennsylvania: Philadelphia.
- Tamiru, D., Argaw, A., Gerbaba, M., Ayana, G., Nigussie, A. and Belachew, T. 2016. Household Food Insecurity and its Association with School Absenteeism among Primary School Adolescents in Jimma Zone, Ethiopia. *BMC Public Health* 16: 802.
- Taplin, D. H. and Clark, H. 2012. *Theory of Change Basics: A Primer on Theory of Change*. ActKnowledge: New York.
- Taplin, D. H. and Rasic, M. 2012. *Facilitator's Source Book: Leading Theory of Change Development Sessions*. ActKnowledge: New York.
- Taplin, D. H., Clark, H., Collins, E. and Colby, D. C. 2013. *Theory of Change: Technical Papers*. ActKnowledge: New York.
- Tareke, G. 2009. *The Ethiopian Revolution: War in the Horn of Africa*. Yale University Press: London.
- te Lintelo, D., Munslow, T., Lakshman, R. and Pittore, K. 2016. Assessing the Policy Impact of 'Indicators': A Process-Tracing Study of the Hunger and Nutrition Commitment Index (HANCI), Evidence Report Number 185. Institute of Development Studies: Brighton.
- Tefera, D. A., Bijman, J. and Slingerland, M. A. 2016. Agricultural Co-operatives in Ethiopia: Evolution, Functions and Impact. *Journal of International Development* DOI: 10.1002/jid.3240

- Tefera, T. 2015. Extension Programme Participation and Smallholder's Livelihood: Evidence from Awassa Zuria District, SNNPR, Ethiopia. *Journal of Agricultural Extension and Rural Development* 7(5): 150-155.
- Tefera, T. T., Handoro, F. and Gemu, M. 2013. Prevalence, Incidence and Distribution of Sweet Potato Virus: It's Effect on the Yield of Sweet Potato in Southern Region of Ethiopia. *International Journal of Science and Research* 2(1): 591-595.
- Tefera, T., Tesfay, G., Elias, E., Diro, M. and Kooren, I. 2016. Drivers of Adoption of Agricultural Technologies and Practices in Ethiopia: A Study Report from 30 Woredas in Four Regions. Capacity Building for Scaling Up of Evidence-based Best Practices in Agricultural Production in Ethiopia Project Report No. NS_DfA_2016_1.
- Temesgen, M., Rockstrom, J., Savenije, H. H. G. and Hoogmoed, W. B. 2007. Assessment of Strip Tillage Systems for Maize Production in Semi-Arid Ethiopia: Effects on Grain Yield and Water Balance. *Hydrology and Earth Systems Sciences* 4: 2229-2271.
- Terry, F. 2002. *Condemned to Repeat? The Paradox of Humanitarian Action*. Cornell University Press: London.
- Tesfahunegn, G. B., Tamene, L. and Vlek, P. L. G. 2011. Evaluation of Soil Quality Identified by Local Farmers in Mai-Negus Catchment, Northern Ethiopia. *Geoderma* 163: 209-218.
- Tesfaye, B. 2008. The Enset (*Ensete ventricosum*) Gardens of Sidama: Composition, Structure and Dynamics of a Traditional Poly-variety System. *Genetic Resources and Crop Evolution* 55: 1347-1358.
- Teshome, A., Torrance, J. K., Baum, B., Fahrig, L., Lambert, D. H. and Arnason, J. T. 1999. Traditional Farmers' Knowledge of Sorghum (*Sorghum bicolor* [Poaceae]) Landrace Storability in Ethiopia. *Economic Botany* 53(1): 69-78.
- Thome, K., Meade, B., Rosen, S. and Beghin, J. C. 2016. Assessing Food Security in Ethiopia with USDA ERS's New Food Security Modeling Approach. Working

Paper 16-WP 567, Center for Agricultural and Rural Development, Iowa State University.

- Thornton, A., Kerslake, M. T. and Binns, T. 2010. Alienation and Obligation: Religion and Social Change in Samoa. *Asia Pacific Viewpoint* 51: 1-16.
- Tolossa, D. 2003. Issues of Land Tenure and Food Security: The Case of Three Communities of Munessa Wereda, South-central Ethiopia. *Norwegian Journal of Geography* 57: 9-19.
- Tronvoll, K. 2010. The Ethiopian 2010 Federal and Regional Elections: Re-Establishing the One-party State. *African Affairs* 110(438): 121-136.
- Tsegaye, A. and Struik, P. C. 2002. Analysis of Enset (*Ensete vventricosum*) Indigenous Production Methods and Farm-based Biodiversity in Major Enset-growing Regions of Southern Ethiopia. *Experimental Agriculture* 38: 291-315.
- Tsegaye, D., Vedeld, P. and Moe, S. R. 2013. Pastoralists and Livelihoods: A Case Study from Northern Afar, Ethiopia. *Journal of Arid Environments* 91: 138-146.
- Tura, H. A. 2014. Woman's Right to and Control over Rural Land in Ethiopia. *Journal of Current Research* 2(4): 81-93.
- Turin, C. and Valdivia, C. 2012. Off-farm Work in the Peruvian Altiplano: Seasonal and Geographic Considerations for Agricultural and Development Policies (p. 145-160). In *Seasonality, Rural Livelihoods and Development* edited by S. Devereux, R. Sabates-Wheeler and R. Longhurst. Earthscan: New York.
- Turner, J. C. 1982. Towards a Cognitive Redefinition of the Social Group (p 15-40). In *Social Identity and Intergroup Relations*, edited by H. Hajfel. Cambridge University Press: New York.
- Turner, J. C. and Oakes, P. J. 1986. The Significance of the Social Identity Concept for Social Psychology with Reference to Individualism, Interactionism and Social Influence. *British Journal of Social Psychology* 25(3): 237-252.
- Turner, J. C., Hogg, M. A., Oakes, P. J. and Reicher, S. D. 1987. *Rediscovering the Social Group: A Self-categorization Theory*. Basil Blackwell: Cambridge.

- Tversky, A. and Kahneman, D. 1981. The Framing of Decisions and the Psychology of Choice. *Science* 211: 453-458.
- Tversky, A. and Kahneman, D. 1992. Advances in Prospect Theory: Cumulative Representation of Uncertainty. *Journal of Risk and Uncertainty* 5: 297-323.
- U.S. State Department. 2007. Ethiopia: International Religious Freedom Report. <http://m.state.gov/md90097.htm>
- U.S. State Department. 2014. Ethiopia: International Religious Freedom Report. <http://m.state.gov/md222049.htm>
- UN. 1975. Report on the World Food Conference 1974. United Nations: New York.
- UN. 2011. World Population Prospects: The 2010 Revision. United Nations: New York.
- UN. 2015. World Population Prospects: The 2015 Revision, Custom Data Acquired via website. United Nations Department of Economic and Social Affairs, Population Division.
- UN. 2016. Transforming Our World: The 2030 Agenda for Sustainable Development. <https://sustainabledevelopment.un.org/post2015/transformingourworld>
- UNEP. 2014. Assessing Global Land Use: Balancing Consumption with Sustainable Supply. Working Group on Land and Soils of the International Resource Panel.
- UNICEF. 2013. Progress Shows that Stunting in Children can be Defeated. http://www.unicef.org/media/media_68734.html
- UNICEF. 2016. Current Stats + Progress. <http://data.unicef.org/child-mortality/under-five.html>
- Uraguchi, Z. B. 2010. Food Price Hikes, Food Security, and Gender Equality: Assessing the Roles and Vulnerability of Women in Households of Bangladesh and Ethiopia. *Gender & Development* 18(3): 491-501.
- USAID. 2016. Adaptive Management. <https://usaidearninglab.org/learning-guide/adaptive-management>
- USDA. 2008. Food Security in the United States: Measuring Household Food Security. United States Department of Agriculture: Washington.

- Uvin, P. 1999. *Aiding Violence: The Development Enterprise in Rwanda*. Kumarian Press: West Hartford.
- Uvin, P. 2009. *Life After Violence: A People's Story of Burundi*. Zed Books: London.
- Vaughan, S. and Tronvoll, K. 2003. *The Culture of Power in Contemporary Ethiopian Political Life*. SIDA's Information Centre: SIDAStudies No. 10.
- Vecchiato, N. L. 1993. *Illness, Therapy, and Change in Ethiopian Possession Cults*. *Africa* 63(2): 176-196.
- Ven Den Berg, M. and Ruben, R. 2006. *Small-scale Irrigation and Income Distribution in Ethiopia*. *Journal of Development Studies* 42(5): 868-880.
- Vervoort, J. M., Palazzo, A., Mason-D'Croz, D., Ericksen, P. J., Thornton, P. K., Kristjanson, P., Forch, W., Herrero, M., Havlik, P., Jost, C. and Rowlands, H. 2013. *The Future of Food Security, Environments and Livelihoods in Eastern Africa: Four Socio-economic Scenarios*. CCAFS Working Paper 63. CGIAR Research Program on Climate Change, Agriculture and Food Security.
- Von Bertalanffy, L. 1972. *The History and Status of General Systems Theory*. *The Academy of Management Journal* 15(4): 407-426.
- Waters-Bayer, A., Kristjanson, P., Wettasinha, C., van Veldhuizen, L., Quiroga, G., Swaans, K. and Douthwaite, B. 2015. *Exploring the Impact of Farmer-led Research Supported by Civil Society Organizations*. *Agriculture & Food Security* 4:4 (p. 1-7).
- Watts, M. 1983. *Silent Famine: Food, Famine & Peasantry in Northern Nigeria*. University of California Press: Berkeley.
- Webb, P. and Braun, J. 1994. *Famine and Food Security in Ethiopia: Lessons for Africa*. Wiley & Sons: New York.
- Weber, E. 1976. *Peasants into Frenchmen: The Modernization of Rural France, 1870-1914*. Stanford University Press: Stanford.
- Wegner, L. and Zwart, G. 2011. *Who Will Feed the World? The Production Challenge*. Oxfam International: Cowley.

- Weible, C. M. and Sabatier, P. A. 2006. A Guide to the Advocacy Coalition Framework (p. 123-136). In *Handbook of Public Policy Analysis: Theory, Politics and Methods* edited by F. Fischer, G. J. Miller and M. S. Sidney. CRC Press: Boca Raton.
- Westengen, O. T. and Banik, D. 2016. The State of Food Security: From Availability, Access and Rights to Food Systems Approaches. *Forum for Development Studies* 43(1): 113-134.
- WFP. 2009. Comprehensive Food Security & Vulnerability Analysis Guidelines. World Food Program: Rome.
- WFP. 2014. Frequently Asked Questions. <http://www.wfp.org/hunger/faqs>
- WFP. 2016. What Causes Hunger? <https://www.wfp.org/hunger/causes>
- Wheeler, T. and von Braun, J. 2013. Climate Change Impacts on Global Food Security. *Science* 341: 508-513.
- Weiss, C. H. 1995. Nothing as Practical as Good Theory: Exploring Theory-based Evaluation for Comprehensive Community Initiatives for Children and Families (p. 65-92). In *New Approaches to Evaluating Community Initiatives* edited by J. Connell, A. Kubisch, L. Schorr and C. Weiss. Aspen Institute: New York.
- Wight, V., Kaushal, N., Waldfogel, J. and Garfinkel, I. 2014. Understanding the Link between Poverty and Food Insecurity among Children: Does the Definition of Poverty Matter? *Journal of Child Poverty* 2(20): 1-20.
- Wolde Giorgis, D. 1989. *Red Tears: War, Famine, and Revolution in Ethiopia*. Red Sea Press: Trenton.
- Woldomeskel, G. 1989. The Consequences of Resettlement in Ethiopia. *African Affairs* 88(353): 359-374.
- Wolf-Powers, L. 2014. Understanding Community Development in a “Theory of Action” Framework: Norms, Markets, Justice. *Planning Theory & Practice* 15(2): 202-219.
- World Bank. 2006. *Ethiopia: Managing Water Resources to Maximize Sustainable Growth: Water Resources Assistance Strategy*. World Bank: Washington.

- World Bank. 2008. World Development Report 2008: Agriculture for Development. World Bank: Washington.
- World Bank. 2011. World Development Report: Conflict, Security, and Development. World Bank: Washington.
- World Bank. 2012. DataBank: databank.worldbank.org
- World Bank. 2015. World Development Report: Mind, Society, and Behavior. World Bank Group: Washington.
- World Bank. 2016. Ethiopia. <http://data.worldbank.org/country/ethiopia>
- Wossen, T., Di Falco, S., Berger, T. and McClain, W. 2016. You Are Not Alone: Social Capital and Risk Exposure in Rural Ethiopia. *Food Security* 8: 799-813.
- Wubeneh, N. G. and Sanders, J. H. 2006. Farm-level Adoption of Sorghum Technologies in Tigray, Ethiopia. *Agricultural Systems* 91: 122-134.
- Yami, M. 2016. Irrigation Projects in Ethiopia: What Can Be Done to Enhance Effectiveness Under ‘Challenging Contexts’? *International Journal of Sustainable Development and World Ecology* 23: 132-142.
- Yelemtu, F. G. 2014. The Social Life of Seeds: An Ethnographic Exploration of Farming Knowledge in Kibtya of Amhara Region, Ethiopia. Doctoral Thesis submitted to the Department of Anthropology, Durham University.
- Yewhalaw, D., Hamels, S., Getachew, Y., Torgerson, P. R., Anagnostou, M., Legesse, W., Kloos, H., Duchateau, L. and Speybroeck, N. 2014. Water Resources Developments in Ethiopia: Potential Benefits and Negative Impacts on the Environment, Vector-borne Diseases and Food Security. *Environmental Review*, 22(4): 364-371.
- Yilma, Z., Mebratie, A., Sparrow, R., Abebaw, D., Dekker, M., Alemu, G. and Bedi, A. S. 2014. Coping with Shocks in Rural Ethiopia. *Journal of Development Studies* 50(7): 1009-1024.
- Yosef, T., Mengistu, U., Mohammed, Y. K., Kefelegn, K. 2013. Camel and Cattle Population Dynamics and Livelihood Diversification as a Response to Climate

Change in Pastoral Areas of Ethiopia. *Livestock Research for Rural Development* 25(9): 1-10.

Young, J. 2008. Impact of Research on Policy and Practice. *Capacity* 35(4): 1-9.

Yu, B. and Nin-Pratt, A. 2014. Fertilizer Adoption in Ethiopia Cereal Production. *Journal of Development and Agricultural Economics* 6(7): 318-337.

Zenawi, M. Undated. African Development: Dead Ends and New Beginnings
Preliminary Draft.

Zinn, H. 2002. *You Can't Be Neutral on a Moving Train*. Beacon Press: Boston.

APPENDICES

APPENDIX A: LETTER OF INFORMED CONSENT – INDIVIDUALS (ENGLISH)



a place of mind

THE UNIVERSITY OF BRITISH COLUMBIA

LETTER OF INFORMED CONSENT – INDIVIDUAL INTERVIEWS

Project Name: Strengthening Food Security in Rural Ethiopia

Principle Investigator: Dr. John Wagner (Anthropology); UBC Okanagan; tel. 250-807-9318; email john.wagner@ubc.ca and Dr. Jon Corbett (Geography); UBC Okanagan; tel. 250-807-9248; email jon.corbett@ubc.ca

Co-Investigator: Logan Cochrane (Doctoral Candidate); UBC Okanagan; tel. 250-215-2045; email logan.cochrane@gmail.com

Research Description: The purpose of this study is to better understand food insecurity in the Wolaita Zone in the Southern Nations, Nationalities and Peoples' Region of Ethiopia. Questions will relate to food security, smallholder agriculture practices, crop types, extension services, schedules and markets. This research will help to improve my understanding of the causes of food insecurity and help me make more informed recommendations to governmental and non-governmental bodies to strengthen food security. This information may also be used for educational purposes, particularly writing academic papers. You are being asked to help with this research because of your experience and knowledge on the subject matter. The research results will be part of the researcher's thesis which will be published on the UBC's cIRcle depository website which is available to the public.

Study Procedures: If you agree to participate in this study you will be interviewed by Logan Cochrane regarding food (in)security. The interview will be arranged for a time and place of your choosing. The interview should take between one and two hours to complete.

Potential Benefits and Risks: The information gathered during this research may help to improve services provided to smallholder farmers in an effort to strengthen food security. This research is being supported by Wolaita Sodo University and has been approved by the Ethiopian Public Health Institute. The findings will be beneficial to individual members of the community as well as the community as a whole. I do not believe the survey process will pose any risks to you personally.

Confidentiality and Storage of Information: None of the information collected from you will be linked to you and your name will not be used in any report or publication or made available to any other person. If, on the other hand, you do not want your name and information to remain confidential, you can indicate your preference below.



Contact for Information about the Study: If you have any concerns or complaints about your rights as a research participant and/or your experiences while participating in this study, contact the Research Participant Complaint Line in the UBC Office of Research Services at 1-877-822- 8598 or the UBC Okanagan Research Services Office at 250-807-8832. It is also possible to contact the Research Participant Complaint Line by email RSIL@ors.ubc.ca). If you have any further questions about this research you may contact the researchers at the telephone numbers or email addresses given above. If you have any concerns about your treatment or rights as a research participant, you may contact the Research Subject Information Line in the UBC Office of Research Services at 1-888-822-8598 or UBC's Okanagan Campus Research Services Office at 250-807-8832.

Consent: Your consent is entirely voluntary and you may refuse to participate at any time without consequence. Your agreement indicates you understand the information provided, including the procedures, risks and uses of the information. If you require a day to consider your participation, the researcher will return to interview you at an agreed-upon time.

If preferred or more appropriate, consent will be taken orally and will be audio recorded.

Name of interview participant (please print): _____

Date: _____

Participant's signature: _____

Researcher's signature: _____

Your additional signature below indicates that you would like to waive the confidentiality agreement above and prefer that we use your real name in any reports or publications that include information you have provided.

Your additional signature below indicates that you would like to receive a copy of the digital audio recording of your interview:

APPENDIX B: LETTER OF INFORMED CONSENT – INDIVIDUALS (AMHARIC)



a place of mind
THE UNIVERSITY OF BRITISH COLUMBIA

በመረጃ ላይ የተመሠረተ ፈቃደኝነት ደብዳቤ (ግለሰብ)

የፕሮጀክት ሥም፡- በገጠራቱ ኢትዮጵያ የምግብ ዋስትና ማጠናከር

የዋና ቀና አካላት፡- ዶ/ር ጆን ዋግነር (አንትሮፖሎጂ) ፣UBC Okanagan; ስልክ ቁ. 250-807-9318; ኢሜል: john.wagner@ubc.ca እና ዶ/ር ጆን ኮርቤት (ጂኦግራፊ) ፣UBC Okanagan; ስልክ ቁ. 250-807-9248; ኢሜል: jon.corbett@ubc.ca

ተባባሪ ዋናት አካላት፡- ሎጋን ኮኮራን (የዶክተራት ዲግሪ እጩ ተመራቂ) ፣ UBC Okanagan; tel. 250-215-2045; email logan.cochrane@gmail.com

የምርምሩ መግለጫ፡- የዚህ ዋናት ዓላማ በኢትዮጵያ የደቡብ ብሔር፣ ብሔረሰቦች እና ሕዝቦች ክልል፣ ወላይታ ዞን የምግብ ዋስትና ለአሉታዊ ተጽዕኖዎች ያለውን ተጋላጭነት እና የምግብ ዋስትና (ዋስትና እጦት) ሥርዓትን ተጨባጭ ሁኔታ በተሻለ መገንዘብ ነው። ይህ ምርምር የምግብ ዋስትና እና በአካላት ስሜት ባለቤታ አርሶ አደሮች አሰራር እንዲሁም የዘር ምርጫ፣ ኤክስቴንሽን እና ገበያ ሁኔታ ላይ ያቀክራል። የምግብ ዋስትና እጦት ምክንያቶች ላይ ያለን ግንዛቤ እንድናሻሽል እና በዚህም መልኩ የምግብ ዋስትናን ለማጠናከር የሚያስችሉ ግልጽ የሆነ ዓላማ ያላቸውን ሥራዎችን ለመንግስታዊና መንግስታዊ ላይሆኑ አቅማት ለማሰራጨት ይረዳል። በተጨማሪም፣ ይህ መረጃ ለትምህርታዊ ዓላማዎች፣ በተለይ ደግሞ ትምህርታዊ ጽሁፎችን ለመጻፍ ጥቅም ላይ ሊውል ይችላል። በዚህ የምርምር ሥራ ላይ ድጋፍን የምንጠይቀው፣ በጉዳዩ ላይ ያለዎት ልምድ እና ዕውቀት ስለሚያስፈልገን ነው። የዚህ ዋናት ግኝቶች የተመራማሪዎ የድህረ-ምረቃ ጽሁፍ ላይ በ UBC's cIRcle ድህረ ገጽ ላይ የሚታተም ይሆናል።

የዋና ቀና አካላት፡- በዚህ ዋናት ውስጥ ተሳትፎ ለማድረግ ከተሰማሙ፣ ስለምግብ ዋስትና (የዋስትና እጦት) በሎጋን ኮኮራን ቃለ መጠይቅ ይደርግልዎታል። ይህ ቃለ መጠይቅ ከ60-120 ደቂቃዎች በላይ አይወስድም።

የዋና ቀና ሊያስገኛቸው የሚችላቸው ጥቅሞች እና ስጋቶች፡- በዚህ ምርምር ወቅት የሚሰበሰቡ መረጃዎች የምግብ ዋስትናን ለማረጋገጥ በሚደረገው ጥረት፣ ለአካላት ስሜት ባለቤታ አርሶ አደሮች የሚሰጡ አገልግሎቶችን ለማሻሻል ሊረዱ ይችላሉ። ይህ ዋናት በወላይታ ሶዶ ዩኒቨርሲቲ የሚደገፍ ከመሆኑም ባሻገር፣ በኢትዮጵያ ሕዝብ ጤና ኢንስቲትዩት ፈቃድ ተሰጥቶታል። የዋና ቀና ግኝቶች ለማሕበረሰቡ ግለሰብ አባላትም ሆነ ለመላው ማሕበረሰብ ጠቃሚ ይሆናሉ። ይህ የዋና ቀና ሂደት እንደግለሰብ በአርሶዎ ላይ ማናቸውንም ስጋት ያስከትላል ብዬ አላምንም።

ምስጢራዊነት እና የመረጃ አያያዝ፡- አርሶዎ ካልተሰማሙ በቀር፣ በዚህ ምርምር ስር ከሚሰበሰቡ መረጃዎች የትኞቹም ቢሆኑ ከአርሶዎ ጋር በቀጥታ እንዲያያዙ አይደረግም፤ ሥምም ከመረጃው ጋር አይያያዝም፣ አይታተምም። ይህን አስመልክቶ ያለዎት አማራጮች በዚህ ቅጽ በስተመጨረሻ ተመልክተዋል።

ስለዋና ቀና መረጃ ለማግኘት ልታገኛቸው የምትችሏቸው ሰዎች፡- ስለምርምሮቹ ማናቸውም ጥያቄዎች ካለዎት ወይም እንደ ተሳታፊ በዋና ቀና የነበርዎትን አስተያየት ለመስጠት ለ UBC ኦካንጋን ካምፓስ ሪሰርች ሰርቪስስ ኦፊስ ጥያቄዎችን በስልክ ቁጥር 1-888-822-8598 ለሪሰርች ሳብጃክት ኢንፎርሜሽን ላይን ወይም በስልክ ቁጥር 250-807-8832 ፣ ወይም በኢሜል RSIL@ors.ubc.ca ማግኘት ይችላሉ። እንዲሁም ስለምርምሮቹ ማናቸውም ጥያቄዎች ካለዎት ከላይ በተሰጡት ስልክ ቁጥሮች ወይም የኢሜል አድራሻዎች ተመራማሪዎቹን ሊያገኛቸው ይችላሉ። የምርምር ተሳታፊ እንደመሆንዎ መጠን፣ ስለዋና ቀና አካላት አቀራረብ ወይም ስለመብቶችዎ ማንኛውም የሚያሳስብዎ ነገር ካለ፣ በስልክ ቁጥር 1-888-822-8598 ለሪሰርች ሳብጃክት ኢንፎርሜሽን ላይን ወይም በስልክ ቁጥር 250-807-8832 ለ UBC ኦካንጋን ካምፓስ ሪሰርች ሰርቪስስ ኦፊስ ጥያቄዎችዎን ማቅረብ ይችላሉ።

ፈቃደኝነት፡- በዚህ ዋና ቀና ተሳታፊ ለመሆን የሚሰጡት ፈቃደኝነት ሙሉ በሙሉ በአርሶዎ ውሳኔ ላይ የተመሠረተ ሲሆን፣ በማናቸውም ጊዜ በዋና ቀና ካለዎት ተሳትፎ ራሱን ማግለል ይችላሉ፤ በዋና ቀና ያለዎትን ተሳትፎ ለማቋረጥ በመወሰን በአርሶዎ ላይ የሚከተል አሉታዊ ተጽዕኖ አይኖርም። በዚህ ዋና ቀና ተሳትፎ ለማድረግ ሥምምነትዎን በመግለጽዎ በዚህ ጽሁፍ የቀረበውን መረጃ፣ የዋና ቀና አካላት ስጋቶችን እና ስለመረጃዎች አጠቃቀም በቂ ግንዛቤ እንዳገኙ ይቆጠራል። በዋና ቀና ለመሳተፍ ወይም ላለመሳተፍ ለመወሰን የአንድ ቀን ጊዜ የሚያስፈልግዎ ከሆነ፣ የዋና ቀና አካላት በቀጣዩ ቀን በስምምነት በተወሰነው ሰዓት ተመልሰው ይመጣሉ።



****ተመራጭ ከሆነ ወይም በይበልጥ አግባብነት ያለው በሚሆን ጊዜ፣ የፈቃደኝነት መግለጫው የሚሰጠው በቃል ሆኖ እንዲቀዳ ይደረጋል****

በቃለ መጠይቅ ተሳታፊ (እባክዎን ስም ይጻፉ)፡-

ቀን፡- _____

የተሳታፊ ፊርማ፡- _____

የተመራጫ ፊርማ፡- _____

ከዚህ በታች በድጋሚ መፈረምዎ፣ ሥምዎ በሪፖርቶች፣ ወዘተ ውስጥ ቢካተት ፈቃደኛ መሆንዎን የሚያመለክት ይሆናል።

ከዚህ በታች በድጋሚ መፈረምዎ፣ ዲጂታል የድምጽ ቀረጻ ቅጂ እንዲደርስዎ መፈለግዎን የሚያመለክት ይሆናል።

APPENDIX C: SCRIPT OF INFORMED CONSENT – FOCUS GROUPS (ENGLISH)



a place of mind

THE UNIVERSITY OF BRITISH COLUMBIA

SCRIPT FOR OBTAINING ORAL INFORMED CONSENT – FOCUS GROUPS

Project Name: Strengthening Food Security in Rural Ethiopia

Principle Investigator: Dr. John Wagner (Anthropology); UBC Okanagan; tel. 250-807-9318; email john.wagner@ubc.ca and Dr. Jon Corbett (Geography); UBC Okanagan; tel. 250-807-9248; email jon.corbett@ubc.ca

Co-Investigator: Logan Cochrane (Doctoral Candidate); UBC Okanagan; tel. 250-215-2045; email logan.cochrane@gmail.com

Research Description: The purpose of this study is to better understand food insecurity in the Wolaita Zone in the Southern Nations, Nationalities and Peoples' Region of Ethiopia. Questions will relate to food security, smallholder agriculture practices, crop types, extension services, schedules and markets. This research will help to improve my understanding of the causes of food insecurity and help me make more informed recommendations to governmental and non-governmental bodies to strengthen food security. This information may also be used for educational purposes, particularly writing academic papers. You are being asked to help with this research because of your experience and knowledge on the subject matter. The research results will be part of the researcher's thesis which will be published on the UBC's cIRcle depository website which is available to the public.

Study Procedures: If you agree to participate in this study you will participate in two focus group discussions, as it is anticipated the length of the discussions will require two meetings. Each discussion will take three to four hours to complete. The focus group discussion will be audio recorded and notes will be made on chart paper by researchers. However, the names of individual speakers will not be recorded or written down. While you are not reimbursed for participating, refreshments will be provided as a token of our appreciation for participating.

Potential Benefits and Risks: The information gathered during this research may help to improve services provided to smallholder farmers in an effort to strengthen food security. This research is being supported by Wolaita Sodo University and has been approved by the Ethiopian Public Health Institute. The findings will be beneficial to individual members of the community as well as the community as a whole. I do not believe the survey process will pose any risks to you personally.

Confidentiality and Storage of Information: None of the information collected from you will be linked to you and your name will not be used in any report or publication or made available to any other person. If, on the other hand, you do not



a place of mind

THE UNIVERSITY OF BRITISH COLUMBIA

want your name and information to remain confidential, you can indicate your preference for that. Because this study is being conducted through the use of focus groups, the researchers cannot provide any assurance of confidentiality. All participants in the study will be asked not to repeat any information they hear, however, the researchers cannot be sure that all participants will keep such a promise.

Contact for Information about the Study: If you have any concerns or complaints about your rights as a research participant and/or your experiences while participating in this study, contact the Research Participant Complaint Line in the UBC Office of Research Services at 1-877-822- 8598 or the UBC Okanagan Research Services Office at 250-807-8832. It is also possible to contact the Research Participant Complaint Line by email RSIL@ors.ubc.ca). If you have any further questions about this research you may contact the researchers at the telephone numbers or email addresses given above. If you have any concerns about your treatment or rights as a research participant, you may contact the Research Subject Information Line in the UBC Office of Research Services at 1-888-822-8598 or UBC's Okanagan Campus Research Services Office at 250-807-8832.

Consent: Your consent is entirely voluntary and you may refuse to participate at any time without consequence. If you do not wish to participate, you should leave the focus group, and you may leave at any time without consequence. Your agreement indicates you understand the information provided, including the procedures, risks and uses of the information. If you require a day to consider your participation, the researcher will return at an agreed-upon time the following day.

APPENDIX D: SCRIPT OF INFORMED CONSENT – FOCUS GROUPS (AMHARIC)



a place of mind
THE UNIVERSITY OF BRITISH COLUMBIA

#

በመረጃ ላይ የተመሠረተ ፈቃደኝነት መግለጫ(ፎክስ ሩፕ)

የፕሮጀክቱ ሥም:- በገጠራቱኢትዮጵያ የምግብ ዋስትና ማጠናከር

የጥናቱ ዋና አካላዎች:- ዶ/ር ጆን ዋግነር (አንትሮፖሎጂ)፣ UBC Okanagan; ስልክ ቁ. 250-807-9318; ኢሜል: john.wagner@ubc.ca እና ዶ/ር ጆን ኮርቤት (ጂኦግራፊ)፣ UBC Okanagan; ስልክ ቁ. 250-807-9248; ኢሜል: jon.corbett@ubc.ca

ተባባሪ ጥናት አካላዎች:- ሎጋን ኮችራን (የዶክተራት ዲግሪ እጩ ተመራቂ)፣ UBC Okanagan; tel. 250-215-2045; email logan.cochrane@gmail.com

የምርምሩ መግለጫ:- የዚህ ጥናት ዓላማ በኢትዮጵያ የደቡብ ብሔር፣ ብሔረሰቦች እና ሕዝቦች ክልል፣ ወላይታ ዞን የምግብ ዋስትና ለአሉታዊ ተጽዕኖዎች ያለውን ተጋላጭነት እና የምግብ ዋስትና (ዋስትና እጦት) ሥርጭትን ተጨባጭ ሁኔታ በተሻለ መገንዘብ ነው። ይህ ምርምር የምግብ ዋስትና እና በአካባቢ መሬት ባለይዘታ አርሶ አደሮች አሰራር እንዲሁም የዘር ምርጫ፣ ኤክስቴንሽን እና ገበያ ሁኔታ ላይ ያተኮራል። የምግብ ዋስትና እጦት ምክንያቶች ላይ ያለን ግንዛቤ እንድናሻሽል እና በዚህም መልኩ የምግብ ዋስትናን ለማጠናከር የሚያስችሉ ግልጽ የሆነ ዓላማ ያላቸውን ሥራዎችን ለመንግስታዊና መንግስታዊ ላይሆኑ አቋማት ለማስረዳት ይረዳል። በተጨማሪም፣ ይህ መረጃ ለትምህርታዊ ዓላማዎች፣ በተለይ ደግሞ ትምህርታዊ ጽሁፎችን ለመጻፍ ጥቅም ላይ ሊውል ይችላል። በዚህ የምርምር ሥራ ላይ ድጋፍዎን የምንጠይቀው፣ በጉዳዩ ላይ ያለዎት ልምድ እና ዕውቀት ስለሚያስፈልገን ነው። የዚህ ጥናት ግኝቶች የተመራማሪው የድህረ-ምረቃ ጽሁፍ ላይ በUBC's cIRcle ድህረ ገጽ ላይ የሚታተም ይሆናል።

የጥናቱ አካላዎች:- በዚህ ጥናት ውስጥ ተሳትፎ ለማድረግ ከተስማሙ፣ በትኩረት ቡድን (ፎክስ ሩፕ) ውይይት ላይ ተሳትፎ ያደርጋሉ። የትኩረት ቡድኑ ውይይት የሚፈጀው ጊዜ እያንዳንዳቸው በግምት ከሦስት ሰዓት እስከ አራት ሰዓት የጊዜ ርዝመት ያላቸውን ሁለት ክፍለ ጊዜያት ያህል ሊሆን ይችላል። ሆኖም ይህ የጊዜ ርዝመት ሊለወጥ ይችላል። የትኩረት ቡድኑም ውይይት በመቅረጻዊ ድምጽ ይቀዳል፣ በቻርት ወረቀት ላይ እንዲሁም በተመራማሪዎቹ ማስታወሻዎች ይያዛሉ። በጠቅላላው የትኩረት ቡድኑ ውይይት ወቅት ምንም ዓይነት ሥም አይመዘገብም። በዚህ ጥናት ውስጥ ተሳትፎ ሲያደርጉ የገንዘብ ክፍያ እንደሌለው በትህትና ስንገልጽ ፣ ለተሳትፎዎ ምስጋና ሻይ ቡና የምናስተናግድ መሆኑን በትህትና እንገልጻለን።

የጥናቱ ሊያስገኛቸው የሚችላቸው ጥቅሞች እና ስጋቶች:- በዚህ ምርምር ወቅት የሚሰበሰቡ መረጃዎች የምግብ ዋስትናን ለማረጋገጥ በሚደረገው ጥረት፣ ለአካባቢ ተገዳሪ



መሬት ባለይዞታ አርሶ አደሮች የሚሰጡ አገልግሎቶችን ለማሻሻል ሊረዱ ይችላሉ። ይህ ጥናት በወላይታ ሶዶ ዩኒቨርሲቲ የሚደገፍ ከመሆኑም ባሻገር፣ በኢትዮጵያ ሕዝብ ጤና ኢንስቲትዩት ፈቃድ ተሰጥቶታል። የጥናቱ ግኝቶች ለማሕበረሰቡ ግለሰብ አባላትም ሆነ ለመላው ማሕበረሰብ ጠቃሚ ይሆናሉ። ይህ የጥናት ሂደት እንደግለሰብ በእርስዎ ላይ ማናቸውንም ስጋት ያስከትላል ብዬ አላምንም።

ምስጢራዊነት እና የመረጃ አያያዝ፡- እርስዎ ካልተስማሙ በቀር፣ በዚህ ምርምር ስር ከሚሰበሰቡ መረጃዎች የትኞቹም ቢሆኑ ከእርስዎ ጋር በቀጥታ እንዲያያዙ አይደረግም፤ ሥምዎ ከመረጃው ጋር አይያያዝም፣ አይታተምም። ጠቃሚ መረጃ መስጠትዎ ዕውቅና እንዲሰጠው ፍላጎት እንዳለዎ ካላመላከቱ በቀር ሥምዎ በግልጽ እንዲካተት አይደረግም ። በትኩረት ቡድን ውይይት ወቅት የተደረሰባቸው ድምዳሜዎች በተሳታፊ የማሕበረሰቡ አባላት የተደረሰባቸው ስለመሆኑ ዕውቅና ይሰጣል። ግለሰቦች ለሚሰጡት ጠቃሚ መረጃ ዕውቅና እንዲሰጣቸው እንደሚፈልጉ ካላመላከቱ በቀር ግለሰቦችን ከመጥቀስ እንቆጠባለን።

ስለጥናቱ መረጃ ለማግኘት ልታገኛቸው የምትችሏቸው ሰዎች፡- ስለምርምሮቹ ማናቸውም ጥያቄዎች ካለዎ፣ ወይም እንደ ተሳታፊ በጥናቱ የነበርዎትን አስተያየት ለመስጠት ለ UBC ኦክንጋን ካምፓስ ሪሰርች ሰርቪስስ ኦፊስ ጥያቄዎችዎን በስልክ ቁጥር 1-888-822-8598 ለሪሰርች ሳብጅክት ኢንፎርሜሽን ላይን ወይም በስልክ ቁጥር 250-807-8832 ፣ ወይም በኢሜል RSIL@ors.ubc.ca ማግኘት ይችላሉ። እንዲሁም ስለምርምሮቹ ማናቸውም ጥያቄዎች ካለዎ፣ ከላይ በተሰጡት ስልክ ቁጥሮች ወይም የኢሜል አድራሻዎች ተመራማሪዎቹን ሊያገኛቸው ይችላሉ። የምርምር ተሳታፊ እንደመሆንዎ መጠን፣ ስለጥናቱ አካሄድ ለቀራረብ ወይም ስለመብቶችዎ ማንኛውም የሚያሳስብዎ ነገር ካለ፣ በስልክ ቁጥር 1-888-822-8598 ለሪሰርች ሳብጅክት ኢንፎርሜሽን ላይን ወይም በስልክ ቁጥር 250-807-8832 ለ UBC ኦክንጋን ካምፓስ ሪሰርች ሰርቪስስ ኦፊስ ጥያቄዎችዎን ማቅረብ ይችላሉ።

ፈቃደኝነት፡- በዚህ ጥናት ተሳታፊ ለመሆን የሚሰጡት ፈቃደኝነት ሙሉ በሙሉ በእርስዎ ውሳኔ ላይ የተመሠረተ ሲሆን፣ በማናቸውም ጊዜ በጥናቱ ካለዎት ተሳትፎ ራስዎን ማግለል ይችላሉ፤ በጥናቱ ያለዎትን ተሳትፎ ለማቋረጥ በመወሰንዎ በእርስዎ ላይ የሚከተል አሉታዊ ተጽዕኖ አይኖርም። ተሳትፎ ማድረግን ካልፈለጉ፣ የትኩረት ቡድኑን ለቅቀው መውጣት አለብዎ፤ ይህንንም በማናቸውም ጊዜ ሊያደርጉ ትይችላሉ። ይህን ተከትሎ የሚመጣ አሉታዊ ውጤትም አይኖርም። በዚህ ጥናት ተሳትፎ ለማድረግ ሥምምነትዎን በመግለጽዎ በዚህ ጽሁፍ የቀረበውን መረጃ፣ የጥናቱን አካሄድ፣ ስጋቶቹን እና ስለመረጃዎች አጠቃቀም በቂ ግንዛቤ እንዳገኙ ይቆጠራል። በጥናቱ ለመሳተፍ ወይም ላለመሳተፍ ለመወሰን የአንድ ቀን ጊዜ የሚያስፈልግዎ ከሆነ፣ የጥናቱ አካሄድ በቀጣዩ ቀን በስምምነት በተወሰነው ሰዓት ተመልሰው ይመጣሉ።

APPENDIX E: SCRIPT OF INFORMED CONSENT – SURVEY (ENGLISH)



a place of mind

THE UNIVERSITY OF BRITISH COLUMBIA

SCRIPT FOR OBTAINING ORAL INFORMED CONSENT - SURVEY

Project Name: Strengthening Food Security in Rural Ethiopia

Principle Investigator: Dr. John Wagner (Anthropology); UBC Okanagan; tel. 250-807-9318; email john.wagner@ubc.ca and Dr. Jon Corbett (Geography); UBC Okanagan; tel. 250-807-9248; email jon.corbett@ubc.ca

Co-Investigator: Logan Cochrane (Doctoral Candidate); UBC Okanagan; tel. 250-215-2045; email logan.cochrane@gmail.com

Research Description: The purpose of this study is to better understand food insecurity in the Wolaita Zone in the Southern Nations, Nationalities and Peoples' Region of Ethiopia. Questions will relate to food security, smallholder agriculture practices, crop types, extension services, schedules and markets. This research will help to improve my understanding of the causes of food insecurity and help me make more informed recommendations to governmental and non-governmental bodies to strengthen food security. This information may also be used for educational purposes, particularly writing academic papers. You are being asked to help with this research because of your experience and knowledge on the subject matter. The research results will be part of the researcher's thesis which will be published on the UBC's cIRcle depository website which is available to the public.

Study Procedures: If you agree to participate in this study you will be asked a series of questions, which have been developed in consultation with members of your community. The survey should take no more than 30 minutes to complete. The time, date and location will be determined upon consent being granted.

Potential Benefits and Risks: The information gathered during this research may help to improve services provided to smallholder farmers in an effort to strengthen food security. This research is being supported by Wolaita Sodo University and has been approved by the Ethiopian Public Health Institute. The findings will be beneficial to individual members of the community as well as the community as a whole. I do not believe the survey process will pose any risks to you personally.

Confidentiality and Storage of Information: None of the information collected from you will be linked to you and your name will not be used in any report or publication or made available to any other person. If, on the other hand, you do not want your name and information to remain confidential, you can indicate your preference for that.

Contact for Information about the Study: If you have any concerns or complaints about your rights as a research participant and/or your experiences while



a place of mind

THE UNIVERSITY OF BRITISH COLUMBIA

participating in this study, contact the Research Participant Complaint Line in the UBC Office of Research Services at 1-877-822- 8598 or the UBC Okanagan Research Services Office at 250-807-8832. It is also possible to contact the Research Participant Complaint Line by email RSIL@ors.ubc.ca). If you have any further questions about this research you may contact the researchers at the telephone numbers or email addresses given above. If you have any concerns about your treatment or rights as a research participant, you may contact the Research Subject Information Line in the UBC Office of Research Services at 1-888-822-8598 or UBC's Okanagan Campus Research Services Office at 250-807-8832.

Consent: Your consent is entirely voluntary and you may refuse to participate at any time without consequence. Your agreement indicates you understand the information provided, including the procedures, risks and uses of the information. If you require a day to consider your participation, the researcher will return at an agreed-upon time the following day.

APPENDIX F: SCRIPT OF INFORMED CONSENT – SURVEY (AMHARIC)



a place of mind
THE UNIVERSITY OF BRITISH COLUMBIA

#

በመረጃ ላይ የተመሠረተ ፈቃደኝነት መግለጫ(ሰርቪ)

የፕሮጀክቱ ሥም:- በገጠራቱ ኢትዮጵያ የምግብ ዋስትናን ማጠናከር

የጥናቱ ዋና አካሂድ:- ዶ/ር ጆን ዋግነር (አንትሮፖሎጂ)፣ UBC Okanagan; ስልክ ቁ. 250-807-9318; ኢሜል: john.wagner@ubc.ca እና ዶ/ር ጆን ኮርቤት (ጂኦግራፊ)፣ UBC Okanagan; ስልክ ቁ. 250-807-9248; ኢሜል: jon.corbett@ubc.ca

ተባባሪ ጥናት አካሂድ:- ሎጋን ኮችራን (የዶክተሬት ዲግሪ እጩ ተመራቂ)፣ UBC Okanagan; tel. 250-215-2045; email logan.cochrane@gmail.com

የምርምሩ መግለጫ:- የዚህ ጥናት ዓላማ በኢትዮጵያ የደቡብ ብሔር፣ ብሔረሰቦች እና ሕዝቦች ክልል፣ ወላይታ ዞን የምግብ ዋስትና ለአሉታዊ ተጽዕኖዎች ያለውን ተጋላጭነት እና የምግብ ዋስትና (ዋስትና እጦት) ሥርጭትን ተጨባጭ ሁኔታ በተሻለ መገንዘብ ነው። ይህ ምርምር በምግብ ዋስትና እና በአነስተኛ መሬት ባለይዘታ አርሶ አደሮች አሰራር እንዲሁም የዘር ምርጫ፣ ኤክስቴንሽን እና ገበያ ሁኔታ ላይ ያቀክራል። የምግብ ዋስትና እጦት ምክንያቶች ላይ ያለን ግንዛቤ እንድናሻሻል እና በዚህም መልኩ የምግብ ዋስትናን ለማጠናከር የሚያስችሉ ግልጽ የሆነ ዓላማ ያላቸውን ሥራዎችን ለመንግስታዊና መንግስታዊ ላይሆኑ አቋማት ለማስረዳት ይረዳል። በተጨማሪም፣ ይህ መረጃ ለትምህርታዊ ዓላማዎች፣ በተለይ ደግሞ ትምህርታዊ ጽሁፎችን ለመጻፍ ጥቅም ላይ ሊውል ይችላል። በዚህ የምርምር ሥራ ላይ ድጋፍዎን የምንጠይቀው፣ በጉዳዩ ላይ ያለዎት ልምድ እና ዕውቀት ስለሚያስፈልገን ነው። የዚህ ጥናት ግኝቶች የተመራማሪው የድህረ-ምረቃ ጽሁፍ ላይ በUBC's clRcle ድህረ ገጽ ላይ የሚታተም ይሆናል።

የጥናቱ አካሄድ:- በዚህ ጥናት ውስጥ ተሳትፎ ለማድረግ ከተስማሙ፣ በእርስዎ ማህበረሰብ አባላት የተዘጋጁ ተከታታይ ጥያቄዎች ይቀርቡልዎታል። መጠይቁን ለመሙላት ከ30 ደቂቃዎች በላይ ጊዜ አይጠይቅም። ፈቃደኝነትዎን ከገለጹ በኋላ፣ ተሳትፎ የሚያደርጉበት ሰዓት፣ ቀን እና ቦታ ይመዘገባል።

የጥናቱ ሊያስገኛቸው የሚችላቸው ጥቅሞች እና ስጋቶች:- በዚህ ምርምር ወቅት የሚሰበሰቡ መረጃዎች የምግብ ዋስትናን ለማረጋገጥ በሚደረገው ጥረት፣ ለአነስተኛ መሬት ባለይዘታ አርሶ አደሮች የሚሰጡ አገልግሎቶችን ለማሻሻል ሊረዱ ይችላሉ። ይህ ጥናት በወላይታ ሶዶ ዩኒቨርሲቲ የሚደገፍ ከመሆኑም ባሻገር፣ በኢትዮጵያ ሕዝብ ጤና ኢንስቲትዩት ፈቃድ ተሰጥቶታል። የጥናቱ ግኝቶች ለማህበረሰቡ ግለሰብ አባላትም ሆነ ለመላው ማህበረሰብ ጠቃሚ ይሆናሉ። ይህ የጥናት ሂደት እንደግለሰብ በእርስዎ ላይ ማናቸውንም ስጋት ያስከትላል ብዬ አላምንም።



a place of mind

THE UNIVERSITY OF BRITISH COLUMBIA

#

ምስጢራዊነት እና የመረጃ አያያዝ:- እርስዎ ካልተስማሙ በቀር፣ በዚህ ምርምር ስር ከሚሰበሰቡ መረጃዎች የትኞቹም ቢሆኑ ከእርስዎ ጋር በቀጥታ እንዲያያዙ አይደረግም፤ ሥምዎ ከመረጃው ጋር አይያያዝም፤ አይታተምም። ይህን አስመልክቶ ያሉዎት አማራጮች በዚህ ቅጽ በስተመጨረሻ ተመልክተዋል።

ስለጥናቱ መረጃ ለማግኘት ልታገኛቸው የምትችሏቸው ሰዎች:- ስለምርምሮቹ ማናቸውም ጥያቄዎች ካለዎት፣ ወይም እንደ ተሳታፊ በጥናቱ የነበርዎትን አስተያየት ለመስጠት ለ UBC ኦካንጋን ካምፓስ ሪሶርሶች ሰርቪስስ ኦፊስ ጥያቄዎችዎን በስልክ ቁጥር 1-888-822-8598 ለሪሶርሶች ሳብጀክት ኢንፎርሜሽን ላይን ወይም በስልክ ቁጥር 250-807-8832 ፣ ወይም በኢሜል RSIL@ors.ubc.ca ማግኘት ይችላሉ። እንዲሁም ስለምርምሮቹ ማናቸውም ጥያቄዎች ካለዎት፣ ከላይ በተሰጡት ስልክ ቁጥሮች ወይም የኢሜል አድራሻዎች ተመራማሪዎቹን ሊያገኛቸው ይችላሉ። የምርምር ተሳታፊ እንደመሆንዎ መጠን፣ ስለጥናቱ አካሄዶች አቀራረብ ወይም ስለመብቶቻዎ ማንኛውም የሚያሳስብዎ ነገር ካለ፣ በስልክ ቁጥር 1-888-822-8598 ለሪሶርሶች ሳብጀክት ኢንፎርሜሽን ላይን ወይም በስልክ ቁጥር 250-807-8832 ለ UBC ኦካንጋን ካምፓስ ሪሶርሶች ሰርቪስስ ኦፊስ ጥያቄዎችዎን ማቅረብ ይችላሉ።

ፈቃደኝነት:- በዚህ ጥናት ተሳታፊ ለመሆን የሚሰጡት ፈቃደኝነት ሙሉ በሙሉ በእርስዎ ውሳኔ ላይ የተመሠረተ ሲሆን፣ በማናቸውም ጊዜ በጥናቱ ካለዎት ተሳትፎ ራስዎን ማግለል ይችላሉ፤ በጥናቱ ያለዎትን ተሳትፎ ለማቋረጥ በመወሰንዎ በእርስዎ ላይ የሚከተል አሉታዊ ተጽዕኖ አይኖርም። በዚህ ጥናት ተሳትፎ ለማድረግ ሥምምነትዎን በመግለጽዎ በዚህ ጽሁፍ የቀረበውን መረጃ፣ የጥናቱን አካሄድ፣ ስጋቶቹን እና ስለመረጃዎች አጠቃቀም በቂ ግንዛቤ እንዳገኙ ይቆጠራል። በጥናቱ ለመሳተፍ ወይም ላለመሳተፍ ለመወሰን የአንድ ቀን ጊዜ የሚያስፈልግዎ ከሆነ፣ የጥናቱ አካሄድ በቀጣዩ ቀን በስምምነት በተወሰነው ሰዓት ተመልሰው ይመጣሉ።

APPENDIX G: INDIVIDUAL INTERVIEW SCRIPT

THE UNIVERSITY OF BRITISH COLUMBIA | OKANAGAN

INDIVIDUAL INTERVIEW SCRIPT



The following questions have been developed as a guide for conducting semi-structured interviews with ten to fifteen individuals. Interviewees will be government employees and members of agricultural households. Individuals will be selected based upon their position in the Ministry of Agriculture (managers from the regional Ministry of Agriculture senior administrators and agricultural extension workers) and for their expert knowledge (individuals primarily responsible for farming activities in their household). A female research assistant will be hired to assist in the interviewing of females from agricultural households. Interviews will be conducted at the beginning of the field research period and again at the end. Concluding interviews will be conducted in order to clarify or follow-up on issues arising from community-level research (focus groups, interviews, survey) that will be carried out after the initial interview described here.

Government Employee

1. What is your name?
2. How long have you lived in Wolaita Zone, SNNPR?
3. What is your position?
4. Can you explain some of the challenges currently faced in the Wolaita Zone with regard to food insecurity?
5. What are the primary causes of food insecurity?
6. What percentage of households in Wolaita Zone are food insecure?
7. What are the main programs and services offered by the government to strengthen food security?
8. Which of these has been the greatest success? Why do you think this program was successful?
9. Which of these programs has been the most challenging? Why do you think this program posed unique challenges?
10. Could you describe the main crops promoted by the government?
11. Has there been any change in crop types in the last ten years?
12. Which seeds are being promoted and how? Are they always available?
13. What percentage of households use these promoted seed types?
14. What percentage use purchased fertilizer?
15. Is fertilizer always available? Affordable for all?
16. What percentage use pesticides?
17. Are pesticides always available? Affordable for all?
18. What percentage of households have sufficient livestock for plowing their fields?
19. Are cooperatives and grain banks supported? Accessible and available?
20. Could you talk about planned and potential future government services?

Smallholder Farmer



21. What is your name?
22. How long have you lived in Wolaita Zone, SNNPR?
23. How do you make your living?
24. Could you tell me about your educational background?
25. Do your children attend school? What are your hopes for their education?
26. Do you travel away from your community for other work, such as seasonal labor?
27. How many people live in your household?
28. Who are mainly responsible for agricultural tasks in the Wolaita Zone? Could you talk about the roles of women and men as well as children and the elderly?
29. Do you own land in the Wolaita Zone? Where and How much?
30. What crops do you typically plant?
31. Where do you acquire the seed?
32. Do you use fertilizer? If so, what type and from where do you get it?
33. Do you use pesticides? If so, what type and from where do you get it?
34. Which plants do you usually sell?
35. Why do you sell these particular crops?
36. Which crops do you grow and keep for your household?
37. What food items do you purchase from the market or trade to acquire? How much (kgs) of these would you buy in a typical month?
38. Has Wolaita Zone experienced times when people did not have enough food to meet their basic needs? If so, please describe that and how it was overcome.
39. How do you meet your household food needs in times of crop failure?
40. Have you interacted with the government extension workers? If so, in what ways and how often?
41. Are the government services supporting your specific farming activities?
42. Are there any other organizations providing agricultural support or training in your area?
43. Do you attend any training related to your agricultural practices?
44. How do you determine which crops to plant?
45. How do you determine how to plant?
46. Do you use a cooperative to sell your crops? Why or why not?
47. What do you do in seasons when agricultural activity is less demanding?

APPENDIX H: IN-DEPTH INTERVIEW SCRIPT

THE UNIVERSITY OF BRITISH COLUMBIA | OKANAGAN

IN-DEPTH INTERVIEW SCRIPT



The following questions have been developed as a guide for conducting in-depth semi-structured interviews with ten to fifteen individuals. Interviewees will be randomly selected based on survey data (or from survey preparations after coding households if surveying is on-going). Multiple members of the household will be interviewed, the exact nature of which will reflect the specific household dynamics, however effort will be made to include at least one male and one female from each household. A female research assistant will be hired to assist in the work with female members of each household. The following questions are part of a semi-structured interview, providing a general outline for the topics covered with it. These questions are subject to change.

1. What is your name?
2. How long have you lived in Wolaita Zone, SNNPR?
3. Could you tell me about your educational background?
4. Who lives in your household and what are their primary responsibilities?
5. Do your children attend school? What are your hopes for their education?
6. Do you spend the entire year doing this, or do you travel for other work, such as seasonal labor?
7. How many people live in your household?
8. Who are the ones primarily responsible for agricultural activity in Wolaita Zone?
Could you talk about the roles of women and men as well as children and the elderly?
9. Do you own land in Wolaita Zone? Where and How much?
10. What crops do you typically plant?
11. Where do you acquire the seed?
12. Do you use fertilizer? If so, what type and from where do you get it?
13. Do you use pesticides? If so, what type and from where do you get it?
14. Which plants do you usually sell?
15. Why do you sell these particular crops?
16. Which crops do you grow and keep for your household?
17. What food items do you purchase from the market or trade to acquire? How much of these would you buy in a typical month?
18. Have you experienced a time when your household did not have enough food to meet your basic needs? If so, please describe that. How was that overcome?
19. How did you meet your household food supply in cases of crop failures?
20. Have you interacted with the government extension workers? If so, in what ways and how often?
21. Are the government services supporting your specific farming activities?
22. Are there any other organizations providing agricultural support in your area?
23. Do you attend any training related to your agricultural practice?
24. How do you determine which crops to use?
25. How do you determine which methods to plant with?



26. Do you use a cooperative to sell your crops? Why or why not?
27. What do you do in seasons when agricultural activity is less demanding?
28. How would you describe your current situation, do you regularly have a sufficient amount of food to meet the basic needs of all the members of your household?
29. Could you describe your situation during the following times (specific historical periods to be identified during the focus group discussions, two examples might include: the Ethiopian millennium (2006) and the change of government leadership from Mengistu Haile Mariam to Meles Zenawi (1991))?
 - a. What was happening in Wolaita Zone at this time?
 - b. How many members were living in your household? Who were they and what was their primary livelihood activity?
 - c. Did any of them engage in non-farming activities?
 - d. How much land did the family farm?
 - e. How much livestock did the family have?
 - f. What crops were planted at that time?
 - g. What were the methods and inputs used?
 - h. Did you have sufficient food to meet the basic requirements of all members of the household? Could you describe this in detail?
 - i. If different than the present, what caused those differences?

APPENDIX I: FOCUS GROUP SCRIPT

THE UNIVERSITY OF BRITISH COLUMBIA | OKANAGAN

FOCUS GROUP SCRIPT



Focus groups will be convened to discuss and answer a set of questions pertaining to food security. The list of questions is short and specific but I anticipate that the process of reaching consensus, or agreeing on why a consensus is not possible, will require detailed discussions. Gender-specific focus groups will be organized in two communities, and it is anticipated that each focus group will meet twice. Participants will those with primary or extensive responsibility for agricultural activities within their households.

First Session (one with men only and one with women only)

1. Explanation about the objectives of the research.
2. Presentation of three general categories on the food security continuum (food secure, uncertain/volatile situation, and chronically insecure). As a group, we will discuss what these categories mean so everyone has a clear understanding.
3. Division into smaller groups; each group will have a research assistant supporting it and taking notes on chart paper. The group will reflect upon these three categories and what traits/factors typically characterize each group.
4. Smaller groups will present their ideas to the rest of the group. After all the presentations and explanations, the entire group will discuss the traits/factors that define each of the three categories.
5. The group will then discuss each trait/factor and think about the best indicator, or means of potential measurement.
6. A final discussion will explore further details about why each of the specific traits/factors chosen increase or decrease vulnerability to food security.

Second Session (one with each of the same two gender-specific groups as above)

1. The research team will bring together and discuss the findings of the two gender-specific focus groups.
2. Each group will be presented with a draft survey, based upon the first focus group sessions, which attempts to measure the identified traits/factors. The means and processes of doing so will be discussed.
3. Since historical events are usually recounted on the basis of memorable events (i.e. droughts or political upheavals), the groups will agree upon historical points of reference for discussion and for use in the survey and in-depth interviews.
4. These historical points of reference will be incorporated into the final survey but will also frame a final discussion about specific and community-wide food security situations at those points in time. These historical points of reference will also be utilized in follow-up in-depth interviews.

APPENDIX J: PRELIMINARY SURVEY

THE UNIVERSITY OF BRITISH COLUMBIA | OKANAGAN

PRELIMINARY SURVEY



This survey will be conducted throughout the two communities involved in this study and will include every household willing to participate. The final survey will be developed on the basis of focus group sessions, but this preliminary survey is provided to indicate the types of questions that will be asked.

1. Location (map of community, interviewer will mark the general location)
2. Household No. _____
3. Number of members living in household: _____
4. Highest level of education within household:
 - a. Primary / Secondary / Vocational / University
5. Are your children attending school (of school age)?
 - a. Yes / Not all / No
6. Do you have a metal roof on your home? Yes / No
7. Do you have a portable radio? Yes / No
8. Do you have a mobile phone? Yes / No
9. Do you have a television? Yes / No
10. Languages spoken by members of household:
 - a. Wolaita / Sidama / Amharic / Hadiy / Gurague / English / Other
11. Religion of household (or majority if differences):
 - a. Orthodox / Protestant / Catholic / Muslim / Other
12. How much land does the household have (acres): _____
13. Which crops do you regularly plant:
 - a. Enset / Teff / Maize / Sweet Potato / Taro / Barley / Wheat / Sorghum / Beans, peas, pulses / other
14. Which is the most important crop for home consumption?
 - a. Enset / Teff / Maize / Sweet Potato / Taro / Barley / Wheat / Sorghum / Beans, peas, pulses / other



15. Which is the most important crop for sale?
 - a. Enset / Teff / Maize / Sweet Potato / Taro / Barley / Wheat / Sorghum / Beans, peas, pulses / other
16. How do you sell your crops?
 - a. From house / in local market / to traders / in cooperative
17. How often (per month) do you interact with an agricultural government extension worker? _____
18. What is the primary support the government provides for you?
 - a. Subsidies / Safety net / Training /
19. Where do you acquire your seed?
 - a. Seed saving / Sharing / Purchase at market / Cooperative
20. Do you use fertilizer?
 - a. If yes, how much (by 50 kg bag) per hectare?
21. Do you use pesticide?
 - a. If yes, how much (by package) per hectare?
22. What type of livestock do you have?
 - a. Cattle - How many: _____
 - b. Goats / Sheep – How many: _____
 - c. Chicken – How many: _____
23. In addition to crops, do you sell:
 - a. Butter / Honey / Other
24. Is any family member employed (outside of own farm)?
 - a. If yes, how many?
25. Does the family have debt?
 - a. If yes: >2,000 ETB / 2,000-10,000 ETB / <10,000 ETB
26. Do you receive financial support from a family member in another part of Ethiopia?
 - a. If yes, how often (times per year)? _____



27. Do you receive financial support from a family member outside of Ethiopia?
 - a. If yes, how often (times per year)? _____
28. Distance to road from house: _____
29. Distance to market from house: _____
30. Distance to grain cooperative from house: _____
31. On average, how many days of the month do you not have sufficient food to meet the basic needs of the family? _____
32. Could you compare your food security during the following two times (specific historical periods to be identified during the focus group discussions, two examples might include: the Ethiopian millennium (2006) and the change of government leadership from Mengistu Haile Mariam to Meles Zenawi (1991))?
 - a. Much better / Moderately better / Same / Worse / Much worse
 - b. Much better / Moderately better / Same / Worse / Much worse
33. Are you supported by the Safety Net program? Yes / No
34. Have you ever been supported by the Safety Net program? Yes / No
 - a. If yes, when? _____

APPENDIX K: COMMUNITY SURVEY

Date: _____ Name: _____

Kelebe: _____ Sub-Kebele: _____

1. Number of members living in household: _____
 - a. Number able-bodied / capable to work: _____ / Number dependent: _____
2. Do you have a metal roof? Yes / No
3. Do you have a portable radio? Yes / No
4. Do you have a mobile phone? Yes / No
5. Highest level of education within household:
 - a. Grade 4 / Grade 8 / Grade 10 / Vocational / Grade 12 / University
6. Are you able to afford to send all your children to school? Yes / No
7. Have any household members have migrated outside of the community for work? Yes / No
 - a. How many for skilled labor? _____
 - b. How many for unskilled labor? _____
8. How many months of **this year** did you have insufficient food? _____
9. Have you ever been supported by the Safety Net program? Yes / No
10. Size of land (in *temut*): _____
11. Which crops do you regularly plant? (circle all the answers given)
 - a. Teff / Maize / Sweet Potato / Taro / Barley / Wheat / Sorghum / Beans, peas, pulses / Other: _____
12. Which are the most important crop for home consumption? (circle all the answers given)
 - a. Enset / Teff / Maize / Sweet Potato / Taro / Barley / Wheat / Sorghum / Beans, peas, pulses / Other: _____
13. Yields used primarily for household [] some sold (1-10 quantal) [] lots sold (10+ quantal) []
14. Which is the most important crop for sale? (circle all the answers given)
 - a. Enset / Teff / Maize / Sweet Potato / Taro / Barley / Wheat / Sorghum / Beans, peas, pulses / coffee / avocado / vegetables / mango / Other: _____
15. Do you plow by [] oxen or by [] hand
16. Where do you acquire your seed?
 - a. Seed saving / Sharing / Purchase at market / Cooperative

17. Do you use improved seed? Yes / No
18. Do you save your own seed? Yes / No
19. Do you use fertilizer? Yes / No
- a. If yes, do you buy with cash or credit
20. Do you use pesticide? Yes / No
21. Number of trees: avocado mango banana coffee enset
22. How many times per year do you interact with the agricultural extension worker? _____
23. Have you been trained by the agricultural extension worker? Yes / No
- a. If yes, on what:
24. How many livestock do you have?
- a. Cattle Milk cow Donkey Sheep Goat
Hybrid Chicken Local chicken
25. Do you sell any non-agricultural items on the market?
- a. Firewood Grass Charcoal Milk Butter Honey
Handicrafts Other _____
26. Time spent collecting water per day _____ (hours)
27. Do you have a home-based water collection / harvesting system? Yes / No
28. Do you have a home vegetable garden? Yes / No
29. Time spent collecting firewood per day _____ (hours)
30. Number of malaria cases within household per year _____ (average)
31. Does the family have debt?
- a. If yes: under 2,000 ETB / 2,000-10,000 ETB / <10,000 ETB
32. Do you receive financial support from a family member in another part of Ethiopia? Yes / No
- a. If yes, how often (average times per year)? _____
33. Do you receive financial support from a family member outside of Ethiopia? Yes / No
- a. If yes, how often (average times per year)? _____
34. Compared to your current situation, how was the food security in your house 10 years ago:
- a. Much better / Moderately better / Same / Worse / Much worse
35. Compared to your current situation, how was the food security in your house 25 years ago:
- a. Much better / Moderately better / Same / Worse / Much worse

APPENDIX L: COMMUNITY SURVEY (AMHARIC)

ቀን: _____ ሥም: _____

ቀበሌ: _____ ንዑስ-ቀበሌ: _____

1. በቤትዎ የሚኖሩ የቤተሰብዎ አባላት ቁጥር: _____
 ሀ. ለሙሉ ሰውነት/ ለሥራ የደረሱት ቁጥር: _____ / ራሳቸውን ያልቻሉት ቁጥር: _____
2. የቤትዎ ጣሪያ ቆይታ ነው? አዎን / አይ
3. ሬዲዮ አለዎት? አዎን / አይ
4. ሞባይል (ተንቀሳቃሽ ስልክ) አለዎት? አዎን / አይ
5. በቤትዎ የሚኖሩት ቤተሰቦችዎ ከፍተኛው የትምህርት ደረጃ የትኛው ነው (መልሱ ላይ ያክብቡ):
 ሀ. 4^ኛ ክፍል / 8^ኛ ክፍል / 10^ኛ ክፍል / የሙያ ትምህርት / 12^ኛ ክፍል / የኒፕርሲ.ቲ
6. ልጆችዎን ትምህርት ቤት ለመላክ የሚሆን አቅም አለዎት? አዎን / አይ
7. ከቤተሰብዎ መካከል ከቀያችሁ ርቆ ሥራ ፍለጋ የተሰደደ ሰው አለ? አዎን / አይ
 ሀ. መልስዎ አዎን ከሆነ: ከሁሉም የሚጠይቅ ሥራ ለመስራት የተሰደዱት ቁጥር ምን ያህል ነው? _____
 ለ. መልስዎ አዎን ከሆነ: ከሁሉም የማይጠይቅ ሥራ ለመስራት የተሰደዱት ቁጥር ምን ያህል ነው? _____
8. በዚህ ዓመት የምግብ እጥረት የገጠማችሁ ለምን ያህል ወራት ነው? _____
9. በሴፍቲ ኔት መርሀ-ግብር ድጋፍ ተደርጎላችሁ ያውቃል? አዎን / አይ
10. ያለዎት መሬት ስፋቱ (በጥመድ): _____
11. የትኛዎቹን ስብሎች ነው በመደበኛነት የምትዘሩት? (መልሶችዎ የሆኑትን ምርጫዎች ሁሉ ያክብቡ)
 ሀ. ጤፍ / በቆሎ / ስኳር ድንች / ጎደሬ / ገብስ / ስንዴ / ማሽላ / ባቄላ, አተር, የቅባት እህሎች
 ሌላ: _____
12. በእርሻችሁ የምታመርቱትን ምርት የምትጠቀሙት ለምንድነው?
 በቤት ውስጥ ለምግብነት እና ለሌሎች [] የተወሰነውን አንሸጣለን (1-10 ኩንታል) [] አብዛኛውን አንሸጣለን (10+ ኩንታል) []
13. በቤት ውስጥ ለመመገብ እጅግ ጠቃሚ የሆኑት የሰብል አይነቶች የትኞቹ ናቸው? (መልሶችዎ የሆኑትን ምርጫዎች ሁሉ ያክብቡ)
 ሀ. አንሰት/ ጤፍ / በቆሎ / ስኳር ድንች / ጎደሬ / ገብስ / ስንዴ / ማሽላ / ባቄላ, አተር, የቅባት እህሎች
 ሌላ: _____
14. ለመሸጥ እጅግ ጠቃሚ የሆኑት የሰብል አይነቶች የትኞቹ ናቸው? (መልሶችዎ የሆኑትን ምርጫዎች ሁሉ ያክብቡ)
 ሀ. አንሰት/ ጤፍ / በቆሎ / ስኳር ድንች / ጎደሬ / ገብስ / ስንዴ / ማሽላ / ባቄላ, አተር, የቅባት እህሎች/ በ-ና/ አቫካዶ/ አትክልቶች/ ማንን /ሌላ: _____
15. የሚያርሱት በበሬ ነው [] ወይስ [] በእጅ?
16. የሚዘሩትን ዘር ከየት ያገኛሉ?
 ሀ. ለዘር የሚሆን እህል አስቀራሉ / ከሌሎች አካፈላሉ / ከገበያ አገኛሉ / ከማኅበር አገኛሉ / ከልማት ወኪል አገኛሉ
17. ምርጥ ዘር ይጠቀማሉ? አዎን / አይ

18. ለዘር ብለው አህል ያስቀራሉ? አዎን / አይ
19. ማዳበሪያ ይጠቀማሉ? አዎን / አይ
 ሀ. መልስዎ አዎን ከሆነ የሚገዙት በገንዘብ ነው [] ወይስ በዱቤ []
20. ጸረ- ተባይ መድኃኒት ይጠቀማሉ? አዎን / አይ
21. ያሉዎት ዛፎች ቁጥር: [] አቮካዶ [] ማንጎ [] ሙዝ [] ቡና [] እንሰት
22. በዓመት ውስጥ ምን ያህል ጊዜ ከግብርና ኤክስቴንሽን ሰራተኛ(ኞች) ጋር የሥራ ግንኙነት ያደርጋሉ? _____
23. በግብርና ኤክስቴንሽን ሰራተኛ(ኞች) አማካኝነት ስልጠና ወስደው ያውቃሉ? አዎን / አይ
 ሀ. መልስዎ አዎን ከሆነ ስልጠናው በምን ላይ ያተኮረ ነበር? _____
24. ምን ያህል ከብቶች አሉዎት?
 ሀ. በሬ [] የወተት ላም [] አህያ [] በግ [] ፍየል []
 የፈረንጅ ዶሮ [] የአበሻ ዶሮ [] ጥጃ []
25. ከግብርና ምርት ውጪ የሆኑ ሸቀጦችን ለገበያ ያቀርባሉ?
 ሀ. የማገዶ እንጨት [] ሣር [] ከሰል [] ወተት [] ቅቤ [] ማር []
 እጅ ሥራ [] ሌላ _____
26. በቀን ውስጥ ውሃ ለመቅዳት ምን ያህል ጊዜ ይፈጅብዎታል _____ (ሰዓት)
27. ለቤትዎ የሚሆን ውሃ የሚያገኙበት የተፈጥሮ ምንጭ ወይም የቦኖ ውሀ አለ? አዎን / አይ
28. ግቢዎ ውስጥ የጓሮ አትክልት አለ? አዎን / አይ
29. በቀን ውስጥ የማገዶ እንጨት ለመሰብሰብ ምን ያህል ጊዜ ይፈጅብዎታል _____ (ሰዓት)
30. በአንድ ዓመት ውስጥ ቤተሰቦችዎ ለምን ያህል ጊዜ በወባ በሽታ ይጠቃሉ? _____ (በአማካይ)
31. ቤተሰብዎ ዕዳ አለበት? አዎን / አይ
 ሀ. መልስዎ አዎን ከሆነ የዕዳው መጠን: 2,000 ብር ያነሰ/ ከ2,000-10,000 ብር / ከ 10,000 ብር ያነሰ
32. በለፉት አምስት ዓመት ውስጥ ለስንት አመት ያህል ብድር ወስደሃል 1 2 3 4 5
33. ብድሩን ከወሰድከዉ በእነዚህ አመታት ምን ያህል ወሰድከዉ ሀ/2006-----ብር ለ/2005-----ብር ሐ/2004-----
34. በሌላ የኢትዮጵያ ክፍል ከሚገኝ የቤተሰብዎ አባል የገንዘብ ድጎማ ያገኛሉ? አዎን / አይ
 ሀ. መልስዎ አዎን ከሆነ በምን ያህል ጊዜ (በዓመት ውስጥ በአማካይ)? _____
35. ከኢትዮጵያ ውጪ ከሚገኝ የቤተሰብዎ አባል የገንዘብ ድጎማ ያገኛሉ? አዎን / አይ
 ሀ. መልስዎ አዎን ከሆነ በምን ያህል ጊዜ (በዓመት ውስጥ በአማካይ)? _____
36. አሁን ካለው ሁኔታ ጋር ሲነጻጸር የዛሬ 10 ዓመት በቤትዎ የነበረው የምግብው ዋስትና ምን ይመስላል:
 ሀ. በእጅጉ የተሻለ / በጥቂቱ የተሻለ / ያው ነው / ብሶበታል / በጣም ብሶበታል
37. አሁን ካለው ሁኔታ ጋር ሲነጻጸር የዛሬ 25 ዓመት በቤትዎ የነበረው የምግብው ዋስትና ምን ይመስላል:
 ሀ. በእጅጉ የተሻለ / በጥቂቱ የተሻለ / ያው ነው / ብሶበታል / በጣም ብሶበታል

APPENDIX M: CONFIDENTIALITY AGREEMENT (ENGLISH)



a place of mind

THE UNIVERSITY OF BRITISH COLUMBIA

CONFIDENTIALITY AGREEMENT

Project Name: Strengthening Food Security in Rural Ethiopia

Principle Investigator: Dr. John Wagner (Anthropology); UBC Okanagan; tel. 250-807-9318; email john.wagner@ubc.ca and Dr. Jon Corbett (Geography); UBC Okanagan; tel. 250-807-9248; email jon.corbett@ubc.ca

Co-Investigator: Logan Cochrane (Doctoral Candidate); UBC Okanagan; tel. 250-215-2045; email logan.cochrane@gmail.com

I, _____ in the City of _____, have been retained by LOGAN COCHRANE to support the above-mentioned research project and in doing so will be privy to confidential information, such as recordings of focus groups and interviews conducted in furtherance of the above mentioned research study. I hereby promise that I will keep confidential all information that is directly or indirectly related to this research project. I hereby promise that I will not retain any personal record or notion of anything I hear while engaged in the research activities and that I will not disclose to any person that information. I further promise that I will delete all electronic files and destroy all documents, notes, annotations or other material arising from the focus groups and interviews that I may receive from LOGAN COCHRANE or his research team upon his instructing me to do so.

Signed _____, this ____ day of _____, 2015
Name

APPENDIX N: CONFIDENTIALITY AGREEMENT (AMHARIC)



a place of mind
THE UNIVERSITY OF BRITISH COLUMBIA

ምስጢር የመጠበቅ ሥምምነት

የፕሮጀክት ሥም፡- በገጠራቱ ኢትዮጵያ የምግብ ዋስተናጎ ማጠናከር

የዋናቱ ዋና አካላት፡- ዶ/ር ጆን ዋግነር (አንትሮፖሎጂ)፣ UBC Okanagan; ስልክ ቁ. 250-807-9318; ኢ.ሜል: john.wagner@ubc.ca

ተባባሪ ዋና አካላት፡- ሎጋን ኮችራን (የዶክተሬት ዲግሪ እጩ ተመራቂ)፣ UBC Okanagan; tel. 250-215-2045; email logan.cochrane@gmail.com

እኔ _____ በ _____ ከተማ ከላይ በተገለጸው የምርምር ፕሮጀክት ላይ ድጋፍ ለመስጠት ከሎጋን ኮችራን ጋር በመስራት ላይ እገኛለሁ። በዚህ መልኩ ሰራተኛ ለምርምር ዋናቱ ሲባል የትኩረት ቡድን (ፎክስ ግራፕ) አባላት በውይይት ላይ ሳሉ የተቀረጹ መረጃዎችን እና ቃለ መጠይቆችን የመሳሰሉ ምስጢራዊ መረጃዎች ላገኝ እችላለሁ። ስለሆነም፣ ከምርምር ዋናቱ ጋር በቀጥታም ሆነ በተዘዋዋሪ ተያያዥ የሆኑ መረጃዎችን በምስጢር ለመያዝ ቃል እገባለሁ። በምርምር ሰራው ላይ ባለሁ ጊዜ የምሰማውን በግሌ እንደማልቀዳ ወይም መረጃውን ይገዢ እንደማለቅዳ ቃል እገባለሁ። እንዲህ ያለውንም መረጃ ለሦስተኛ ወገን የማልሰጥ ወይም የማልገልጽ መሆኑን አረጋግጣለሁ። ከትኩረት ቡድኑ በተገኙ መረጃዎች ላይ ተመስረተው የተያዙ የኮምፒውተር ፋይሎች እንዲሁም ከትኩረት ቡድኑ ጋር ተያያዥ የሆኑ ሰነዶችን፣ ማስታወሻዎችን እና ሌሎች ጽሁፎችን ከሎጋን ኮችራን ወይም ከምርምር ቡድናቸው አግኝቼ እንዲሁ መረጃዎች እና ሰነዶች እንድሰርዝ ወይም እንዳስወግድ በምታዘዝ ጊዜ፣ መረጃዎቹን እና ሰነዶች ሙሉ በሙሉ ለመሰረዝ እና ለማስወገድ ቃል እገባለሁ።

ፊርማ፡ _____ በዛሬ በ _____ ቀን 2007 ተፈረመ።
ሥም

APPENDIX O: LETTER OF SUPPORT FROM DR. YISHAK GECHO, WOLAITA SODO UNIVERSITY



APPENDIX P: ETHICS APPROVAL FROM THE ETHIOPIAN PUBLIC HEALTH INSTITUTE



ቁጥር: EPHI 6.13/331
Ref. No.
ቀን: 14/04/2015
Date

Logan Cochrane
10610 Sherman Dr., Lake Country, BC,
Canada

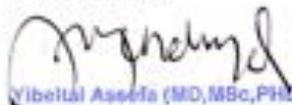
Subject :- Approval of Project Proposal

Dear Logan,

I would like to congratulate you and your group that your Research proposal entitled "The Dynamics of Food Security in wolaita Zone, SNNPR" has been examined and approved for its continuation of surveillance scientific and ethical merits by our Scientific and Ethical Review Committee.

Looking forward to seeing the best outcome of this work as a contribution to solving the health problem of our country. I wish you a successful implementation.

Sincerely Yours,



Yibeltal Assefa (MD, MSc, PhD)
Deputy Director General



CC:-
General Director Office
Scientific Research Ethical Review Office
EPHI

APPENDIX Q: SCIENTIFIC AND ETHICAL REVIEW COMMITTEE APPROVAL

SCIENTIFIC AND ETHICAL REVIEW COMMITTEE- (SERC)

PROJECT REVIEW DECISION FORM

PROJECT TITLE: The Dynamics of Food Security in Wolaita Zone, SNNPR

PRINCIPAL INVESTIGATOR: Logan Cochrane

PROJECT NUMBER: SERO-011-4-2015

COMMENTS OF SERC

The project entitled "The Dynamics of Food Security in Wolaita Zone, SNNPR" has been reviewed for its benefit to the country, scientific validity and ethical standards. It is expected to provide evidence based information on the dynamics of food security in Wolaita Zone of SNNPR, which will further support action and policy to strengthen food security in rural Ethiopia. The project proposal is found to be country relevant, scientifically validated and ethically clear.

APPROVED [X] CONDITIONALLY APPROVED [] NOT APPROVED []

SIGNATURE OF THE SERC MEMBERS

NAME	SIGNATURE
1. <u>Getachew Adais</u>	<u>[Signature]</u>
2. <u>Melke Tadesse</u>	<u>[Signature]</u>
3. <u>Mekonnen Tadesse</u>	<u>[Signature]</u>
4. <u>Feyen Getachew</u>	<u>[Signature]</u>

COMMENT AND FINAL DECISION OF THE INSTITUTE'S DIRECTOR

APPROVED [X] CONDITIONALLY APPROVED [] NOT APPROVED []

SIGNATURE [Signature] DATE April 16/2015
Yibral Assefa (MD, MSc, PHD)
Deputy Director General



APPENDIX R: LETTER OF SUPPORT FROM SNNPR HEALTH BUREAU



የደቡብ ብሄሮች ብሔረሰቦችና ሕዝቦች ክልላዊ
 መንግሥት ጤና ቢሮ
 South Nations Nationalities and People's Regional
 State Health Bureau



ቁጥር ሀ/ክ/ኃ/1138/10
 Ref. No
 ቀን 9/8/07
 Date

→ ለወላይታ ዞን ጤና መምሪያ :-ሰይ

ጉጭ :-ለጥናት ስለሚደረግ ትብብር ይሆናል

ከላይ በርዕሱ እንደተገለጸው እቶ ሉጋን ድካሚ የተባሉ "The Dynamics of Food Security in Wolaita Zone,SNNPR" በሚል ርእስ ያቀረቡት የጥናት ሰነድ በኢትዮጵያ የሕብረተሰብ ጤና ሊንሰተትቶት የሰነድ ምግባር ምጋሚ ኮሚቴ ታይቶ የጸደቀላቸው ስለሆነ በእናንተ ዞን ለጥናት የሚሆን መረጃ ለመስጠት ስለሚመጡ በእናንተ በኩል አስፈላጊውን ትብብር ሁሉ እንደታደርጉላቸው እናሳስባለን።

አንድም እናት በወለድ ምክንያት መሞት የለባትም!!



Emebet Mekonnen Fara
 አመጣት መዘገጃ ቀሪ
Emebet Mekonnen Fara
 ጤና ምርምርና ተከናዎኝ ሽግግር
 ደጋፊ የሥራ ሂደት ባለቤት
 Health research and technology
 transfer support process owner

ግልባጭ:-

- ለጤና ምርምርና ተከናዎኝ ሽግግር ደጋፊ የሰፊ ሂደት ጤና ቢሮ
- ለአቶ ሉጋን ድካሚ

DD 149 ■ [20-92-09] Fax 08 20-57-92 E-mail snnprh@telecom.net.et Code 251-0462
 Addis ■ [20-59-50] 20-59-55 snnprh@telecom.net.et
 [20-92-08] 20-54-09 snnprh@telecom.net.et T.T
 [20-54-06]
 [20-02-32]

APPENDIX S: LETTER OF SUPPORT FROM WOLIATA ZONE HEALTH DEPARTMENT

SNNPR/State Wolaita Zone Health Department
 ደ.ደ./ወ/ወ/ወ/ወ የወላይታ ዞን ጤና መኖሪያ



ተገ 06/09/07
 01/10/88/3/224

ልዩምት ጋሴ መረዳ ጤ/ጥ/ጸ/ዘ/ት
 ዐዲት!

ጉዳዩ:- ስፕናት ስለሚደረግ ትብብር ይሆናል።

ኮላይ በርዕሱ እንደተገለጸው ከክልል ጤና ቢሮ ወተኛር ዘሴ1-3/13810 ወተን 9/8/07 እቶ ሱጋን ኮቸራን የተባሉ " The dynamic of food security in wolaita zone SNNPR" ስሜል ርዕሰ ያላረቡትን የፕናት ስነ ምግባር የሀብረተሰብ ጤና እንስትትዩት የሥነ-ምግባር ገጽጋሚ ኮሚቴ ታይቶ የሀይቶላቸጢ መሆንን ገልጸው ትብብር እንዲደረግላቸው በጥፋልግ መሠረት በእናንተ ወከል ትብብር እንዲደረግላቸው እናሳስባለን።



አገደግ እናት በወሊድ ምክንያት መሞት የለባትም!

አሙኒ ሙሉኛ ጉንፋ
 Amenu Sulama Goni
 Deputy Director General
 Health Department Wolaita

ገልባጭ
 -ለመኖሪያ ሃላፊ ቢሮ
 -ለበሽ/መከላከያ/ማንገዳና የሥራ ሂደት

☎ 24 ሰዓታት
 ☎ 046-551-21-58
 046-551-21-59
 046-551-44-90
 046-551-41-22
 046-551-44-56
 Fax: 0465511405

