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# EVALUATION DESIGN PROPOSAL

## IMPACT EVALUATION OF THE FEED THE FUTURE TANZANIA LAND TENURE ASSISTANCE ACTIVITY

FEBRUARY 28, 2017 (REVISED JULY 18, 2019)

This publication was produced for review by the United States Agency for International Development. It was prepared for the E3 Analytics and Evaluation Project by Management Systems International, a Tetra Tech Company; Development & Training Services, Inc. (dTS); and NORC at the University of Chicago.

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Contracted under AID-OAA-M-13-00017

E3 Analytics and Evaluation Project

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### **DISCLAIMER**

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# CONTENTS

<b>Acronyms</b> .....	<b>v</b>
<b>Introduction</b> .....	<b>1</b>
<b>Activity Description</b> .....	<b>1</b>
Background.....	1
LTA Overview.....	2
Project Implementation Status .....	2
Development Hypothesis .....	3
<b>Existing Evidence and Knowledge Gaps</b> .....	<b>3</b>
<b>Purpose, Audiences, and Uses</b> .....	<b>4</b>
Purpose .....	4
Audiences .....	5
Intended Use.....	5
<b>Evaluation Questions</b> .....	<b>5</b>
Theory of Change.....	5
Evaluation Questions .....	8
<b>Gender Aspects of Questions</b> .....	<b>11</b>
<b>Evaluation Design</b> .....	<b>13</b>
Village Selection Process.....	14
Approach to Randomization .....	15
<b>Data Collection Methods</b> .....	<b>15</b>
Outcome Measures.....	16
Quantitative Data Collection.....	17
Qualitative Data Collection.....	18
<b>Sampling Plan</b> .....	<b>19</b>
Minimum Sample Size .....	19
Household Selection .....	20
<b>Data Analysis Methods</b> .....	<b>21</b>
Panel Regression Models .....	21
Continuous Treatment Estimators.....	22
<b>Data Quality Assurance</b> .....	<b>23</b>
Survey Pre-Test and Translation.....	23
Enumerator Training.....	23
Quality Control.....	23
Data Entry .....	24
<b>Data Management Plan</b> .....	<b>24</b>

File Architecture .....	24
Data Storage and Backup .....	25
Data Format and Sharing .....	25
Privacy and Confidentiality Considerations.....	25
Informed Consent	25
Ethical Approvals	25
<b>Strengths and Limitations .....</b>	<b>25</b>
<b>Deliverables and Reporting .....</b>	<b>28</b>
Anticipated Deliverables .....	28
Reporting and Dissemination.....	28
<b>Team Composition .....</b>	<b>30</b>
Phase I Principal Investigator.....	30
Phase II Principal Investigator .....	30
Evaluation Specialist/Coordinator.....	31
Local Expert .....	31
Home Office Support .....	32
<b>USAID Participation .....</b>	<b>32</b>
<b>Schedule and Logistics .....</b>	<b>32</b>
Estimated Schedule.....	32
Logistics.....	32
<b>Reference List.....</b>	<b>35</b>
<b>Annex A: Statement of Work.....</b>	<b>37</b>
<b>Annex B: CVs of Evaluation Team .....</b>	<b>48</b>
<b>Annex C: Field Reconnaissance Survey Instruments.....</b>	<b>49</b>
<b>Annex D: Draft Baseline and Midline Survey Instruments .....</b>	<b>54</b>
Midline Survey	97
<b>Annex E: Draft Endline Survey Instrument.....</b>	<b>122</b>
<b>Annex F: Power Calculation Details.....</b>	<b>156</b>
<b>Annex G: Phase II Options Memo .....</b>	<b>158</b>

# ACRONYMS

ADS	Automated Directives System (USAID)
CAPI	Computer-Assisted Personal Interviewing
CCRO	Certificates of Customary Right of Occupancy
DDL	Development Data Library
DEC	Development Experience Clearinghouse
DLO	District Land Office
DID	Difference-in-Differences
dTS	Development and Training Services
E3	Bureau for Economic Growth, Education, and Environment (USAID)
FGD	Focus Group Discussion
FTF	Feed the Future
GOT	Government of Tanzania
HH	Household
ICC	Intra-Cluster Correlation
IE	Impact Evaluation
KII	Key Informant Interview
LTA	Land Tenure Assistance
LU	Office of Land and Urban (USAID/E3)
MAST	Mobile Application to Secure Tenure
MDES	Minimum Detectable Effect Size
MSI	Management Systems International
NGO	Non-Governmental Organization
QED	Quasi-Experimental Design
RCT	Randomized Controlled Trial
SAGCOT	Southern Agricultural Growth Corridor of Tanzania
SOW	Statement of Work
VLUP	Village Land Use Plan
WEAI	Women's Empowerment in Agriculture Index
USAID	United States Agency for International Development

# INTRODUCTION

This Evaluation Design Proposal corresponds to the impact evaluation (IE) of USAID/Tanzania's Feed the Future Tanzania Land Tenure Assistance (LTA) activity. This IE is being implemented by the E3 Analytics and Evaluation Project<sup>1</sup> and commissioned by USAID's Office of Land and Urban in the Bureau for Economic Growth, Education, and Environment (USAID/E3/LU). USAID's draft Statement of Work (SOW) for this evaluation is included in Annex A. The IE design incorporates a phase-in randomized controlled trial (RCT) to rigorously test how effective the provision of land certification is in increasing land investment, promoting the empowerment of underrepresented groups, strengthening tenure security, decreasing land disputes, and improving environmentally sustainable practices.

This document provides the framework for the IE design, and was updated in September 2017 to include subsequent details and a revised timeline and estimated budget based on changes to the implementation schedule that occurred after Phase I of the evaluation. First, it describes the Tanzanian context and the main LTA activity components, which have been designed to address the key causal factors of land tenure specific to Tanzania. Then, it reviews the existing evidence and remaining knowledge gaps in the land tenure literature, which provides the motivation for this IE. The document then lays out the evaluation questions, evaluation design, and key outcome measures of interest. Subsequent sections focus on the data collection methods and the sampling plan, followed by a discussion of the data analysis methods and the strengths and limitations of the evaluation design, which includes updates based on changes in LTA activity implementation between Phase I and Phase II of the evaluation. The final sections cover required ethical approvals, the data management plan, deliverables and reporting requirements, the proposed evaluation team composition, the evaluation timeline, and estimated budget.

## ACTIVITY DESCRIPTION

### Background

The Tanzanian land rights system is based on public ownership of land, with all land owned by the state and held in trust by the President. The majority of land in Tanzania is designated as Village Land, which is governed by the 1999 Village Land Act. The Act recognizes the rights of villages to hold and govern land according to customary law. Individuals residing on or using Village Land have the right to obtain formal documentation of their rights in the form of a Certificate of Customary Right of Occupancy (CCRO), which can be issued at the local government level.<sup>2</sup>

In practice, most villagers do not have CCROs for their plots and lack formal documentation of their land rights (Pederson 2010). Land use demarcation and mapping that are required to issue the documents have not yet been completed in many villages. Moreover, the District Land Offices (DLOs) responsible for issuing CCROs frequently lack the capacity to do so, and rural land users are often unaware of their land rights under the law.

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<sup>1</sup> The E3 Analytics and Evaluation Project is implemented by Management Systems International (MSI) in partnership with Development and Training Services and NORC at the University of Chicago.

<sup>2</sup> For more on Tanzania's land ownership system, see USAID Country Profile, Land Tenure and Property Rights: Tanzania: [https://www.land-links.org/wp-content/uploads/2016/09/USAID\\_Land\\_Tenure\\_Tanzania\\_Country\\_Profile.pdf](https://www.land-links.org/wp-content/uploads/2016/09/USAID_Land_Tenure_Tanzania_Country_Profile.pdf).

Meanwhile, multiple factors contribute to increasing pressure on land, particularly in the Southern Agricultural Growth Corridor of Tanzania (SAGCOT) region. The confluence of climate change, population growth, and the regular migration of pastoralist communities to the region cause tensions over land and give rise to disputes at a number of levels (Mwamfupe 2015). Large-scale agricultural investments are increasing in the area, leading to insecurity on the part of smallholders due to weak land rights protection and limited bargaining power (Deininger 2011). There is increasing recognition on the part of the Government of Tanzania (GOT) and the donor community that improving the security of land rights is essential for protecting the rights of smallholders, reducing disputes and tensions, and maximizing the economic potential of the region.

## LTA Overview

The LTA activity is implemented through a four-year, \$6 million contract awarded by USAID/Tanzania to DAI in December 2015 and is a part of the Feed the Future (FTF) initiative. The LTA activity will clarify and document land ownership, support local land use planning efforts, and increase local understanding of land use and land rights in Tanzania. It is envisioned that the interventions carried out under the LTA activity will increase land tenure security and lay the groundwork for sustainable agricultural investment for both smallholder farmers and commercial investors throughout the SAGCOT and in the value chains of focus for Tanzania's FTF program.

The LTA activity is comprised of two larger activities (1 and 2) and two smaller activities (3 and 4), described below. Local sustainability is a critical component of the overall activity. The goal of the LTA activity is to empower district and village land institutions in targeted districts to carry forward the capacity development and land administration process independently (and with little or no outside financial support) once the activity concludes. The LTA activity works within the current land management bureaucracy, but helps facilitate formal land certification and education through the following activities:

- Activity 1: Assist villages and district administrations in completing the land use planning process and delivering CCROs in select villages within two districts (Iringa and Mbeya).
- Activity 2: Educate and develop the capacity of village land governance institutions and individual villagers to complete the land use planning and CCRO process; effectively manage land resources; respect the land rights of women, youth, and pastoralists; and build agriculture-related business skills.
- Activity 3: Educate and develop the capacity of district-level land governance institutions in the Mbeya Region to complete the land use planning and CCRO process; effectively manage land resources; respect the land rights of women, youth, and pastoralists; and build agriculture-related business skills.
- Activity 4: Develop capacity to use the Mobile Application to Secure Tenure (MAST) application throughout the SAGCOT and nationally to assist with tenure certification.

## Project Implementation Status

DAI began implementing LTA in an initial set of six villages beginning in fall 2016. These initial villages are in Iringa District, as agreed between USAID and the Ministry of Lands, Housing, and Human Settlement Development. Given that there are capacity-building activities in Mbeya as part of Activity 3, it is anticipated that five villages will be allocated to activities in Mbeya District as "test" villages. Full rollout of the LTA activity occurred in April 2017 in Iringa District, with 30 additional villages selected to receive the interventions through 2019. DAI has developed implementation protocols to ensure consistent deployment of the intervention throughout each of the villages.

The original evaluation design, which was developed in coordination with DAI, called for two phases of activity implementation. The first half of the 30 villages would receive the LTA activity from April 2017 to April 2018, and the second half would receive the LTA activity from April 2018 through the end of activity implementation. As described further in this document and in Annex G, USAID/Tanzania and DAI subsequently changed the LTA activity's original timeline (against which this evaluation design was based) due to concerns about achieving activity targets. As a result, the second phase of activity implementation is now commencing in October 2017 and will run through the end of the activity timeline in 2019.

## Development Hypothesis

USAID envisions that if the LTA activity clarifies and documents land ownership, supports land use planning efforts, and increases local understanding of land use and land rights, then this will lead to increased agricultural investment, reduced land tenure risk, and more empowered people and local institutions. The LTA activity components work in tandem to promote inclusive agricultural development, food security and investment, and institutional capacity. Figure 1 in the Evaluation Questions section of this document illustrates the causal linkages that USAID envisions for translating results under each of the activities into the LTA activity's intended intermediate and final outcomes.

## EXISTING EVIDENCE AND KNOWLEDGE GAPS

The evidence base on the impacts of land tenure interventions based on randomized designs – widely recognized as the “gold standard” in IE research – is virtually non-existent. The only published study of which the evaluation team is aware is a preliminary analysis of the short-term impacts of a Millennium Challenge Account (MCA)-funded intervention in Benin by Goldstein et al (2015). They find that the MCA program to regularize tenure leads to an increase in the propensity to invest in longer-term cash crops, and reduces gender disparities for female land holders. In addition to follow-up work on that study, there is an on-going experimental study of the USAID Tenure and Global Climate Change activity in Zambia that is currently in progress and is being conducted by the Cloudburst Group. The experimental study of the LTA activity as proposed in this document will thus make an important contribution to the existing literature, helping to fill an important gap in the evidence base on land tenure interventions.

Secure property rights over land is widely recognized as a necessary precondition for economic growth and development (Coase 1960, North 1981). Where property rights are incompletely defined or poorly enforced, the consequent risk of land expropriation or dispute can undermine incentives to accumulate and invest. There is substantial literature documenting the existence of insecure land rights and associated disputes in a variety of developing country contexts, including rural areas in sub-Saharan Africa (e.g. Derman et. al. eds. 2007). As a result, improving the security of land rights has long been on the agenda of both donors and developing country governments. A wide range of related interventions has been carried out, including formalization programs to issue land titles or other documents, policy reforms, and institutional capacity building.

Despite widespread recognition of the importance of strengthening land rights in rural contexts, the existing evidence base is limited. A recent systematic review by Lawry et al (2014) brings together the existing evidence on the efficacy of land rights interventions in terms of stimulating agricultural investment and productivity. Following an exhaustive search process, the review identifies only 20 papers that use rigorous quantitative methods to measure the impact of land tenure programs, none of

which were RCTs. These papers tend to find positive impacts overall, though with some variability, and highlight the importance of contextual factors in mediating the relationship between land tenure interventions and agricultural outcomes. The authors conclude that “the available evidence provides a weak basis for establishing the general effectiveness of land tenure programs” (p. 69).

In addition, there is a substantial literature that casts doubt on the efficacy of land titling programs to lead to broader economic impacts. For example, Hombrados, et al (2015) use household surveys from the National Bureau of Statistics in Tanzania to estimate the impact of land titles on investment using a propensity score matching model. That study and others like it<sup>3</sup> found that titles had no effect on investment or tenure security. Unlike recent efforts such as LTA, the earlier formalization efforts that are the subject of this literature generally did not involve participatory approaches and careful attention outreach.

Strengthening property rights can improve economic outcomes along a number of different channels, depending on the context. For example, issuing titles to urban squatters has been shown to lead to improved educational outcomes and foster more market-oriented beliefs (Galliani and Schargrotsky 2004). Another frequently cited benefit is the potential for formal property documents to be used as collateral for loans, thereby improving access to credit (see Feder and Feeney 1991, Besley 1995, and de Soto 2000). In rural contexts in particular (such as the area in which the LTA activity will be implemented), a key justification for strengthening property rights to land is to strengthen incentives to make investments that are long term or fixed in land, and thus boost agricultural productivity and lead to more environmentally sustainable practices.

## PURPOSE, AUDIENCES, AND USES

This IE comes at an opportune time, as USAID and the GOT are already investing elsewhere in land tenure programming while also recognizing that additional research is needed to strengthen the evidence base for how land rights clarification and documentation affects investment, the incidence of disputes, women’s empowerment, and tenure security. While USAID and implementers from international development organizations and non-governmental organizations (NGOs) have been exploring different approaches for documenting land ownership and sustainable land investment, there have been few rigorous evaluations of the impact of more formal approaches and outcomes from customary tenure systems (as noted above).

### Purpose

The purpose of this IE is to provide USAID with evidence on the impacts of its investment in the LTA activity and to contribute to research on the impacts of land mapping, registration, and formalization in rural customary land tenure settings in Tanzania. The results of this evaluation will be made widely available to assess lessons learned and, as applicable, encourage replication within or beyond Tanzania. As such, this evaluation will apply USAID’s *Evaluation Policy* guidance with respect to using the most rigorous evaluation design and methods possible to demonstrate accountability for achieving results. The evaluation is also designed to capture practical lessons from USAID’s experience with regard to increasing sustainable agricultural investment by securing land tenure through first-time registration.

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<sup>3</sup> For example Kenya (Migot-Adholla 1994), Madagascar (Jacoby and Minten 2007), and elsewhere in Africa and South America (Benjaminsen et al 2009).

## Audiences

The evaluation is aimed at several audiences. First, the findings are expected to be of value from an accountability and learning standpoint to USAID, specifically USAID/E3/LU the USAID/E3 Office of Global Climate Change as well as the Tanzania Mission. Findings and lessons learned from this evaluation will also be of interest to the GOT and donor community active in the sector, who aim to scale CCRO delivery rapidly across Tanzania, and to DAI and other practitioners in the land tenure sector working to document customary land rights. Finally, the evaluation will be of interest to donors such as those involved with the Land Tenure Support Program, a large-scale effort jointly funded by the United Kingdom's Department for International Development, the Swedish International Development Cooperation Agency, the Danish International Development Agency, as well as implementers and scholars more generally by making an important contribution to the evidence base on land tenure interventions.

## Intended Use

This evaluation will be used to inform the design of future donor and government activities that aim to improve tenure security and generate economic benefits by strengthening land rights.

# EVALUATION QUESTIONS

## Theory of Change

Figure 1 illustrates the causal linkages that USAID envisions for translating results under each of the activities<sup>4</sup> into LTA's intended intermediate and final outcomes. By contributing to the issuing CCROs to land users, as well as education on the land laws and capacity building components, the LTA activity will contribute to improved tenure security and reduced incidence of land disputes. These outcomes in turn will spur increased investment in agriculture as land users change their behavior in response to stronger incentives brought about by improved security. A greater sense of empowerment for women, youth, and pastoralists is expected to result for individual members of these groups who receive CCROs, as well as more broadly from LTA outreach and education on the land laws, which protect the rights of women, youth, and pastoralists. Developing the Village Land Use Plans (VLUPs) as well as some of the trainings for village and district officials will improve the capacity of village and government institutions to manage land resources, including to identify and maintain protected areas, establish or strengthen the management of communal forest areas or woodlots, limit excessive expansion of areas under cultivation, and implement other environmental management practices or sustainable land uses within villages. Finally, activities under LTA to raise awareness about MAST and build capacity to use it within the GOT and donor community should result in greater uptake of the MAST technology in future land mapping and registration projects, leading to more transparent, participatory, and efficient processes to issue CCROs.

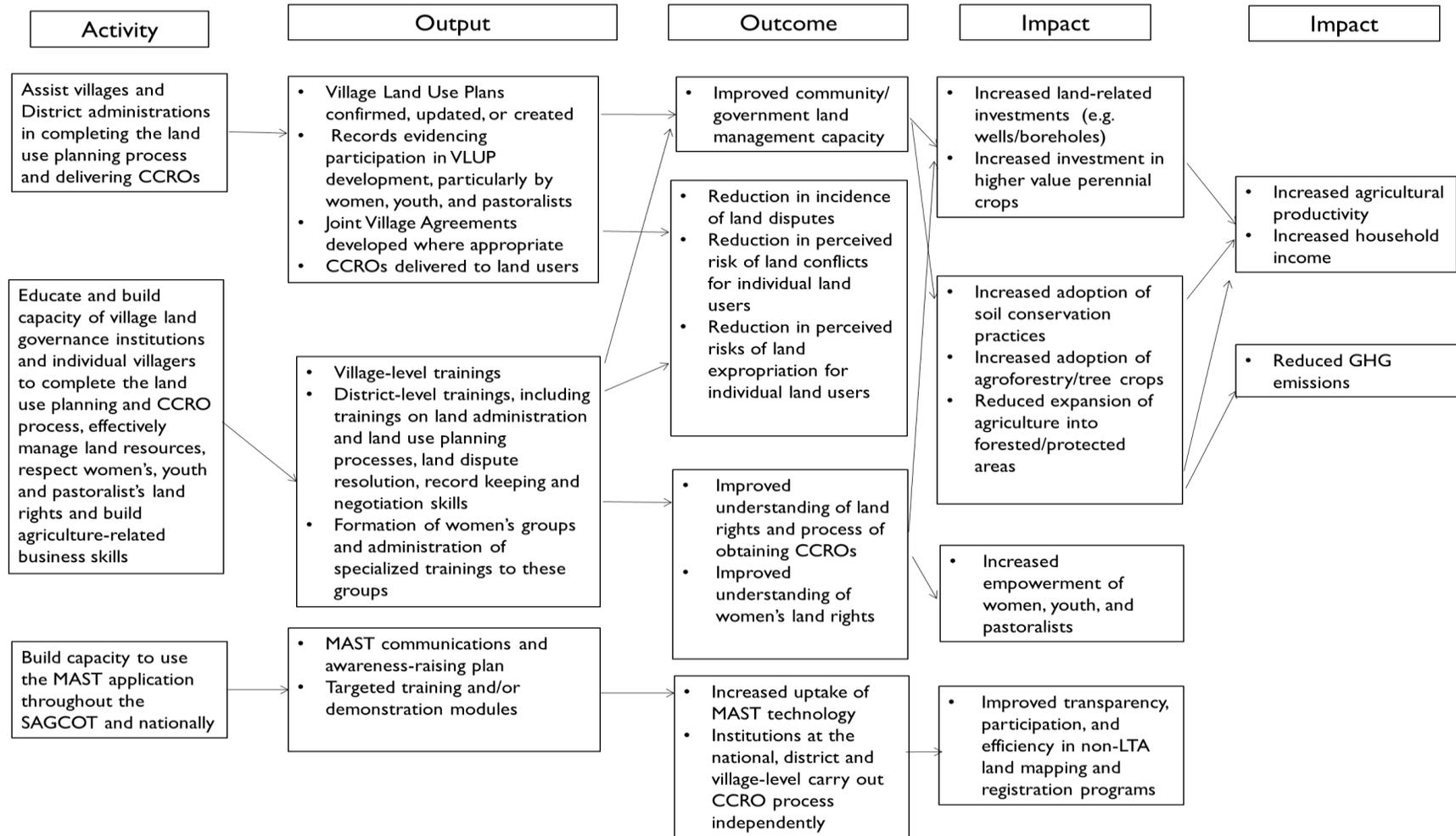
The IE will be limited to measuring LTA's impacts on the direct beneficiaries of the activity through the issuing of CCROs and LTA's outreach and education component – i.e., the first two Activity boxes in Figure 1. Assessing the extent to which the MAST technology has been taken up by other efforts to

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<sup>4</sup> Only three activities are shown in Figure 1, since Activity 3 is specific to Mbeya District, and this evaluation will solely focus LTA's activities in Iringa District. This Theory of Change diagram has been updated since the SOW shown in Annex A, with USAID's approval.

issue CCROs would require different data sources and methods, and would likely require a longer timeframe as well. Thus, the last benefit stream in Figure 1 will be beyond the scope of this IE.

**FIGURE 1: THEORY OF CHANGE FOR THE LTA ACTIVITY**



## Evaluation Questions

The IE will address five evaluation questions derived from the Theory of Change that have been developed and finalized in collaboration with USAID, as illustrated in the Table I. More detail on each question is provided in Table I.<sup>5</sup>

**TABLE I: THEMATIC AREAS OF INVESTIGATION AND EVALUATION QUESTIONS**

Thematic Area	Evaluation Questions
1. <b>Tenure security and land management</b>	1. In what ways and to what extent do landholders who have received formal land documentation through the assistance of LTA perceive their land rights to be more secure?
2. <b>Land disputes</b>	2. To what extent are landholders who have received formal land documentation through the assistance of LTA less likely to experience land disputes? 2.1 What kinds of disputes (if any) are affected and what are the mechanisms by which LTA affects them?
3. <b>Investment and land use</b>	3. To what extent do landholders who have received formal land documentation through the assistance of LTA change their investment and land use decisions in a manner that reflects strengthened incentives resulting from increased tenure security? 3.1 What (if any) are the specific decisions that are affected and how does LTA influence them?
4. <b>Empowerment</b>	4. To what extent do the LTA outreach and communication activities, as well as mapping, verification, and the formal registration of land, lead to a greater sense of empowerment on the part of women, youth, and pastoralists? 4.1 What (if any) are the specific aspects of empowerment that are affected and how does LTA influence them?
5. <b>Economic and environmental outcomes</b>	5. To what extent do the LTA interventions to strengthen land tenure lead to increased agricultural productivity, household income, and wealth, as well as more environmentally sustainable land-use practices? 5.1 Which (if any) of these outcomes are affected and how does LTA influence them?

1. Perceived tenure security and land management capacity: *in what ways and to what extent do landholders who have received formal land documentation through the assistance of LTA perceive their land rights to be more secure?*

The hypothesis underlying this question is that clarification and (ultimately documentation) of land rights will reduce beneficiaries' concerns about threats to their land rights. These include the risk of various types of disputes, including between neighbors, within families, or between farmers and pastoralists, as well as expropriation by more powerful actors, such as large-scale investors seeking land. In addition, beneficiaries should perceive that both community-level and governmental institutions are better able to manage land and natural resources as a result of clarification of land rights under LTA in a way that fosters improved environmental outcomes.

<sup>5</sup> The evaluation questions outlined in this section have been revised since the SOW provided in Annex A was prepared, and these changes have been approved by USAID.

Measuring the LTA activity's impact on these kinds of perceptions requires careful attention to the context, so that survey questions can be structured around the particular issues and concerns that beneficiaries are facing. A number of previous IEs commissioned by USAID have considered these issues, and this IE of the LTA activity will draw on these experiences in developing its approach to measuring tenure security.<sup>6</sup>

2. Incidence of land-related disputes: *to what extent are landholders who have received formal land documentation through the assistance of LTA less likely to experience land disputes?*

2.1 *What kinds of disputes (if any) are affected and what are the mechanisms by which LTA affects them?*

The hypothesis for this question is related to the aforementioned question, but with a focus on the actual incidence of dispute, namely: if the LTA activity provides an accountable and reliable way to register land claims and rights, including between villages where appropriate, then the number of disputes will decline because ambiguity about ownership will improve and an objective, accountable record will be available.

The IE will consider the actual incidence of disputes over land, as well as the demographics of those involved in disputes. As above, careful attention to context is needed in designing the approach to measuring these outcomes. While reducing land disputes is an important outcome, a potential challenge with measuring impacts on disputes is that interventions such as those under the LTA activity can actually increase the incidence of land disputes in the short run. For example, disputes may arise in the course of establishing boundaries, or latent disagreements about land rights may rise to the surface in the course of establishing formal claims. Such disputes were observed for the first MAST pilot site, with several reported cases of border disputes, intra-family disputes over ramifications for inheritance, as well as former residents returning to try to reassert old claims when they learned that land registration was occurring. In some cases, surveying a population about a topic, such as disputes or tenure security, may exacerbate or create problems (Zwane et al 2011). The IE team will ensure that enumerators are given clear and context-sensitive guidelines so that survey methods are applied to measure disputes rather than potentially create them (e.g. by creating a sense that current land claims are invalid or in dispute).

3. Investment and land use: *to what extent do landholders who have received formal land documentation through the assistance of LTA change their investment and land use decisions in a manner that reflects strengthened incentives resulting from increased tenure security?*

3.1 *What (if any) are the specific decisions that are affected and how does LTA influence them?*

From the perspective of individual smallholders, insecure land rights represent a risk to making certain types of investments. In particular, the returns to investments that are fixed in land or that pay off over a long period of time will not be realized if the landholder loses their rights to the land. By strengthening land rights, the LTA activity will strengthen the incentives for these kinds of investments and should thus result in observable changes in investment behavior. Such investments may include small-scale irrigation technology, soil conservation measures, or switching to perennial crops, such as coffee, cashews, or fruit trees. The existing evidence on the relationship between land rights and these kinds of investments shows considerable variation

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<sup>6</sup> See USAID Land Tenure Impact Evaluations for more: [https://www.land-links.org/wp-content/uploads/2016/10/USAID\\_Land\\_Tenure\\_Impact\\_Evaluation\\_Overview.pdf](https://www.land-links.org/wp-content/uploads/2016/10/USAID_Land_Tenure_Impact_Evaluation_Overview.pdf).

in the levels and types of impacts that are observed, particularly for sub-Saharan Africa. Lawry et al. (2014) provides a summary and meta-analysis of the global evidence, and finds the evidence too thin to make conclusions regarding changes in investment due to improved tenure. Similarly, Fenske (2011) provides a summary of evidence from West Africa, which finds that outcome effects are highly sensitive to the estimation strategy, but there may be some positive investment in tree planting.

4. **Empowerment:** *to what extent do the LTA outreach and communication activities, as well as mapping, verification and the formal registration of land, lead to a greater sense of empowerment on the part of women, youth, and pastoralists?*

4.1 *What (if any) are the specific aspects of empowerment that are affected and how does LTA influence them?*

The hypothesis behind this question is: if LTA activity villages are provided with training on existing, inclusive land laws and certification that targets women, as well as youth<sup>7</sup> and pastoralists, then these groups will become empowered to participate and make decisions, form community groups, and exercise their land rights as already exists under the law.

The evaluation will consider outcomes related to empowerment. Empowerment is often considered from the standpoint of potentially vulnerable sub-groups, such as women, youth, pastoralists, or the poor, and can also be conceptualized more generally. A World Bank study (Alsop and Heinsohn 2005) defines empowerment broadly as “a person’s capacity to make effective choices; that is, as the capacity to transform choices into desired actions and outcomes,” and presents a framework for measuring different dimensions of empowerment. In the context of the LTA activity, strengthening land rights is expected to promote empowerment through improving security of assets that are critical to people’s lives in the household, community, and economy. Since previous efforts to strengthen land tenure have in some cases undermined the rights of the more vulnerable, including secondary rights holders, USAID is particularly interested in understanding the extent to which land documentation empowers, rather than undermines, the rights of these stakeholders. In addition, the LTA activity may have an impact on household decision making, particularly by helping female heads of households or women within a household make better decisions about land use. Attention to unintended consequences will be critical, especially for those whose rights may not be registered through the activity and/or who may be at risk of losing their rights in the process of documentation. As such, and in line with other IEs of land documentation activities funded by USAID, this evaluation intends to track outcomes for individuals and communities whose access to land in the treatment areas may change over time, including through the use of a panel survey.

Empowerment outcomes are of particular interest for this IE in the context of gender. A recent paper by Allendorf (2007), for example, found that land rights are closely linked to women’s empowerment in Nepal, where they improved the decision-making power of women in the study. In addition, USAID has funded the development of the Women’s Empowerment in Agriculture Index (WEAI), which is widely used to measure women’s empowerment in FTF activities and includes a battery of survey questions and methods to measure various dimensions of empowerment.

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<sup>7</sup> Youth will be defined as individuals under the age of 35, with the focus of this portion of the study on youth with claims to land either individually or jointly with a spouse.

5. **Broader Economic and Environmental Outcomes:** *to what extent do the LTA interventions to strengthen land tenure lead to increased agricultural productivity, household income, and wealth, as well as more environmentally sustainable land-use practices?*
  - 5.1 *Which (if any) of these outcomes are affected and how does LTA influence them?*

In the longer run, the benefits of the LTA activity in terms of strengthening investment incentives and potentially improving access to credit are expected to have broader observable impacts. Farmers who make investments in land or switch to higher value perennial crops should experience higher value of agricultural output per unit of land, and consequently higher levels of household income. In addition, increased tree planting, improved soil conservation and erosion control, the reduction in the propensity to practice “slash-and-burn” agriculture, and improved land management practices will lead to reduced greenhouse gas emissions. Stronger land rights improve the incentives for farmers to manage their land more sustainably, for example by engaging in fallowing, soil conservation, and erosion control.

## GENDER ASPECTS OF QUESTIONS

Gender issues are particularly important in the context of land tenure, and in line with USAID’s Gender Equality and Female Empowerment Policy and Automated Directives System 205.3.6, the evaluation will consider the gender-specific and differential effects of the LTA activity. These include questions about tenure insecurity that pertain to issues experienced by women in particular, for example perceptions of threats to widows’ land by their husbands’ relatives in the community. In addition, evaluation question 4 on empowerment will specifically focus on whether strengthening land rights leads to gender equity more broadly. Both of these outcomes will be measured by incorporating a separate module in the household survey that will be administered to wives/partners in the married or co-habiting households.

In addition, analysis for this evaluation will consider differential impacts on the remaining outcomes for female-headed households.<sup>8</sup> Data collection and analysis will allow for gender-disaggregated findings to identify gender differences with respect to benefits and outcomes, as well as lessons learned from female CCRO recipients and farmers, whether as individuals or jointly with their spouses, and from women in the target communities who do not, for whatever reason, receive CCROs through the activity. In some cases, statistical findings on differentiated impacts could be limited as the sample of female heads of household and CCRO recipients may be small. Qualitative data collection and analysis will also devote particular attention to investigating differential impacts by gender.

Table 2 provides a breakdown of the gender considerations for each evaluation question.

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<sup>8</sup> Approximately 36 percent of households in Iringa have female heads, according to the National Bureau of Statistics. See Basic Demographic and Socio-Economic Profile Statistical Tables Tanzania Mainland (2014).

**TABLE 2: GENDER CONSIDERATIONS BY EVALUATION QUESTION**

Evaluation Question	Sex Dis-aggregated Data	Gender Specific/Differential Effects: Access and Participation	Gender Specific/Differential Effects: Results and Benefits
<p>1. In what ways and to what extent do landholders who have received formal land documentation through the assistance of LTA perceive their land rights to be more secure?</p>	<p>✓ Yes</p>	<p>Access to or inclusion in CCROs among households may vary by sex.</p>	<p>Levels of awareness and understanding of land rights and the value of CCROs could vary by sex, including in joint tenancy and tenancy-in-common situations.</p> <p>Any differences in the perception of security, as well as differences in understanding of land rights and tenure security within households and between men and women will be analyzed.</p>
<p>2. To what extent are landholders who have received formal land documentation through the assistance of LTA less likely to experience land disputes?</p> <p>2.1 What kinds of disputes (if any) are affected and what are the mechanisms by which LTA affects them?</p>	<p>✓ Yes</p>	<p>Levels of participation and involvement in disputes may vary by sex.</p>	<p>Percentage of household respondents involved in disputes, time to resolve disputes, perception of how problematic disputes are, and the nature of disputes may vary by sex.</p>
<p>3. To what extent do landholders who have received formal land documentation through the assistance of LTA change their investment and land use decisions in a manner that reflects strengthened incentives resulting from increased tenure security?</p> <p>3.1 What (if any) are the specific decisions that are affected and how does LTA influence them?</p>	<p>✓ Yes</p>	<p>Women’s participation in investment activities and land use decision making may vary from household to household and will need to be analyzed.</p>	<p>Crop portfolio, change in farm-asset investment, use of fertilizer, and use of hired labor may vary by sex.</p> <p>Prioritization of land use activities, types of investments made, and crop choice may vary by sex; differences would be examined.</p>
<p>4. To what extent do the LTA outreach and communication activities, as well as mapping, verification and the formal registration of land, lead to a greater sense of empowerment on the part of women, youth, and pastoralists?</p> <p>4.1 What (if any) are the specific aspects of empowerment that are affected and how does LTA influence them?</p>	<p>✓ Yes</p>	<p>Attendance and awareness of LTA outreach and communication activities, attendance at group meetings, and understanding of land rights may vary by sex.</p>	<p>Perceptions and knowledge of land rights as they relate to women, youth, and pastoralists, decision making within the household, food security, ability to participate in and benefit from land exchanges, and presence at group meetings may vary by sex</p>

Evaluation Question	Sex Dis-aggregated Data	Gender Specific/Differential Effects: Access and Participation	Gender Specific/Differential Effects: Results and Benefits
5. To what extent do the LTA interventions to strengthen land tenure lead to increased agricultural productivity, household income, and wealth, as well as more environmentally sustainable land-use practices? 5.1 Which (if any) of these outcomes are affected and how does LTA influence them?	✓ Yes	Access to LTA within a household may vary by sex, but overall household income will apply to men and women.  Participation, however, in sustainable land practices and productivity may vary by sex.	Use of environmentally sustainable land clearing practices, soil conservation, move toward use of perennial crops, and fallowing may vary by sex.

## EVALUATION DESIGN

The goal of an IE is to generate objective, scientifically valid evidence of the *causal* impact of an intervention. The central methodological consideration for an IE is its approach to establishing causality. The challenge in this regard arises because for most interventions, the outcomes of interest are affected by a range of factors in addition to the intervention itself. For example, in the present context one would expect beneficiaries of the LTA activity to experience increases in agricultural earnings as a result of their participation in the activity. However, changes in agricultural earnings are also affected by weather, prices, household labor availability, and other factors that are not related to the activity. Therefore, it is not sufficient for the evaluation to simply measure changes in outcomes for beneficiaries. The evaluation must also include an approach to identifying the extent to which the observed changes are due to the effects induced by the LTA activity, as opposed to other factors, over the evaluation timeframe.

To separate the impact of the intervention from the influence of other factors, IEs establish the causal impact of the intervention on an outcome for a beneficiary population by considering what *would have happened* to that beneficiary population over the same period of time in the absence of the intervention. To represent what would have happened, IEs use a control, which serves as a “comparison” group to represent the counterfactual, i.e., the hypothetical outcomes for the beneficiaries in the absence of the activity. Per the USAID’s *Evaluation Policy*, the use of a counterfactual is the defining feature of an IE that distinguishes it from a performance evaluation. An important methodological consideration for IEs is the approach to selecting the control group.

The IE of the LTA activity will use a clustered RCT design. Prior to activity implementation in the areas of focus for the IE, a set of villages will be randomly assigned to either a treatment group that will receive the LTA intervention, or a control group that will not participate in the activity. Randomized experimental designs such as this one are widely considered to be the most methodologically rigorous IE approach, as they provide a more convincing demonstration of causality than alternatives that require non-random approaches to be used to select a comparison group. An RCT minimizes the potential for selection bias, which occurs when there are underlying differences between treatment and comparison groups that lead to differences in outcomes, by assigning the intervention in a systematically random way.

As detailed earlier in this document, research to date in an RCT-type framework on the impacts of land tenure interventions is limited to a handful of ongoing studies, and the evidence base lags behind many other sectors. For this reason, a randomized IE of the LTA activity will make an important contribution to the current state of knowledge about the efficacy of these programs.

## Village Selection Process

The IE will measure LTA's impacts on activity beneficiaries in a set of 30 randomly selected villages<sup>9</sup> in Iringa District. The evaluation originally proposed a two-phase approach, with village randomization and implementation occurring at regular intervals. Fifteen initial villages were randomly selected for implementation beginning in 2017. Due to time constraints and concerns about DAI achieving activity targets, LTA will begin implementation in the second set of 15 randomly chosen villages in October 2017, which is a change from the original design that spaced the two phases a year apart, in 2017 and 2018.

Ideally, all 30 villages would have been selected at the outset, with a single baseline collected prior to implementation. However, in response to concerns raised by DAI, selection of the villages is taking place in two stages prior to the beginning of the two phases of implementation. These concerns stem from the fact that the context of the LTA activity may change over time as village administrative and geographic boundaries shift, an increasingly common occurrence as a village's population grows. Therefore, a list of potential LTA activity villages developed in 2016 may not be appropriate at a later date, as a village on the list may merge with another, or may split into two villages. Criteria that once made a village suitable for the LTA activity in 2016 thus may no longer apply in later years.

The approach to village selection has been discussed in detail and agreed upon between DAI, USAID, the GOT, and the evaluation team. As a first step in this process, the Iringa DLO prepared a "master list" of 75 villages suggested for potential LTA activity implementation according to its own priorities. From this list, the evaluation team randomly selected 37 candidate villages to allow for 15 Phase I treatment villages, 15 Phase I control villages, and up to 7 villages to be eliminated for implementation reasons prior to randomized assignment.<sup>10</sup>

Ahead of Phase I, the evaluation conducted a field reconnaissance trip in September 2016 to visit each of the 37 potential villages to obtain additional data on the village context and assess the suitability of each of the 37 candidate villages for implementation. Villages may be deemed not appropriate for implementation for a variety of reasons, such as the presence of other certification outreach programs, inaccessibility, or impending village subdivision. DAI and the evaluation team developed the criteria for this assessment jointly and Annex C provides the instrument that was used. Due to implementation time constraints, and DAI's ability to confirm village details via the Iringa DLO, no such trip was planned ahead of Phase II. For Phase II, the evaluation team instead revisited the master list, with input from DAI and the Iringa DLO, to randomly select 32 villages for consideration.

Phase II villages were selected in August 2017. The Phase I treatment, control, and reserve villages as well as any villages that were unsuitable for implementation will be removed from the original "master list" of 75 villages compiled by the DLO. The remaining villages were then reviewed in coordination with

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<sup>9</sup> LTA will also be implemented in a preliminary set of non-randomly selected villages in Iringa beginning in 2016, and is also anticipated to be implemented in a set of five test villages in Mbeya. These villages will not be included in the IE and were not selected from the list of potential IE villages. The selected 30 villages were chosen randomly after accounting for key factors such as whether the village planned on subdividing, accessibility during the rainy season, and the presence of villagers capable of running the MAST application.

<sup>10</sup> To improve balance, the initial 37 villages were selected by stratifying by Constituency and blocking on whether the village had VLUP, geographic location (Constituency and Ward), and number of parcels in the village.

the DLO and implementation team to determine whether any should be removed from consideration due to circumstances such as changing administrative boundaries, new land tenure programs, or other concerns. To the greatest extent possible, the evaluation team will seek to adhere to the original list and only remove villages when necessary.

This process is summarized in Table 3.

**TABLE 3: AMENDED LTA EVALUATION PHASE-IN DESIGN**

Original Implementation Year	Amended Implementation Year	Control	Treatment
2017-2018	2017	15 randomly chosen villages do not receive LTA	15 randomly chosen villages receive LTA
2018-2019	2017-2018	15 randomly chosen villages do not receive LTA	15 randomly chosen villages receive LTA

## Approach to Randomization

As previously noted, the site selection process under an experimental IE design would identify a pool of at least 60 villages from which the evaluation team would randomly assign half to the treatment group and half to the control group over the course of implementation. Rather than a simple random assignment, the approach to randomization would include stratification to improve the comparability of the treatment and control groups. For example, one dimension along which the randomization could be stratified is the status of the VLUP. It is expected that some villages will have completed VLUPs, while others will not, and this may lead to differences in expected outcomes. Stratifying by VLUP status would mean that those villages in the initial pool that have completed VLUPs would be equally divided between treatment and control groups.

The evaluation team may also be able to incorporate criteria for stratification that are useful from the standpoint of implementation. During field reconnaissance, the evaluation team found that there are a large number of NGOs operating in Iringa District. Several of these groups, such as One Acre Fund, provide loans for farm inputs. Stratifying based on the presence of certain types of programs could help lead to a more balanced sample of treatment and control villages. Similarly, if the DLO would like to ensure a minimum number of treatment villages in particular areas (e.g., wards), the design may be able to accommodate this through stratification. It is expected that the evaluation team, DAI, and USAID will have further discussions regarding how stratification may be used prior to this evaluation design being finalized.

## DATA COLLECTION METHODS

This section describes the data collection methods to be undertaken to answer the evaluation questions. As described in the previous section, the evaluation team conducted a field reconnaissance trip in conjunction with DAI and the Iringa DLO in September 2016. Villages that are found to be suitable for LTA activity implementation during the analysis of field reconnaissance data will form the pool of potential LTA implementation villages surveyed as part of first-round baseline data collection in April 2017, with a second baseline taking place in October 2017 as part of the phase-in design described above. Quantitative sampling will aim to establish a true panel survey by interviewing the same respondents at baseline and endline. Data collection in treatment villages will target households

regardless of whether they participated in the LTA activity.<sup>11</sup> Quantitative data collection will be implemented by a local survey research firm subcontracted by MSI, with close collaboration and supervision provided by the evaluation team to ensure high-quality data. The evaluation team also expects to conduct qualitative data collection, such as focus group discussions, group interviews, or key informant interviews, to collect information from LTA activity beneficiaries and non-beneficiaries, to help enrich and explain the quantitative findings.

## Outcome Measures

Each evaluation question will consider different outcome measures, as follows:

1. **Land Rights and Tenure Security Outcomes:** Change in perceived risk of expropriation; change in understanding of the use (i.e., application) and utility (i.e., value) of documentation and land certification; change in fixed household asset investments.
2. **Dispute Outcomes:** Change in incidence of disputes; change in perceived risk of disputes; change in dispute resolution time.
3. **Investment and Land Use Outcomes:** Change in investment in farm inputs; change in investment in soil conservation, tree crops, and/or perennial crops; change in investment in parcel improvements; change in plot rotation and fallowing practices; change in number and type of crops grown; investment in farm equipment; future investment intentions; and number of non-family laborers hired.
4. **Empowerment Outcomes:** Change in understanding of women's land rights; change in household decision-making power; change in parcel-use decision making power; change in parcel transaction decision-making power; change in control over financial gains derived from parcel transactions; change in time to resolve disputes affecting pastoralists; perceived tenure security; and change in women attending group meetings.
5. **Economic and Environmental Outcomes:** number of trees planted; income/consumption change; change in number of leisure goods and non-farm investments; propensity to implement soil conservation; and change in land fallowing practices.

Table 4 summarizes the different data collection approaches that are planned for collecting data along each outcome variable and evaluation question. Using all of these approaches will provide a more comprehensive analysis to answer the evaluation questions.

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<sup>11</sup> The survey team will select households randomly, which may result in some households in treatment villages being surveyed despite not participating in the LTA activity. This will produce what is known as an intent-to-treat estimate, which shows the impact of the LTA activity overall for every randomly selected villager, regardless of whether they actually received a CCRO.

**TABLE 4: DATA COLLECTION MATRIX**

Outcome Variables	Baseline	Endline	
		Household Survey	Qualitative Interviews
<b>Evaluation Question 1</b>			
Risk of expropriation	X	X	X
Perception of government capacity	X	X	
Understanding of land rights	X	X	X
HH Investment	X	X	
<b>Evaluation Question 2</b>			
Incidence of Disputes	X	X	
Risk of Disputes	X	X	X
Dispute Resolution	X	X	X
<b>Evaluation Question 3</b>			
Investment in farm inputs	X	X	
Investment in crops (e.g., tree crops, perennial crops)	X	X	X
Investment in conservation	X	X	X
Plot rotation and fallowing	X	X	
Number and type of crops grown	X	X	X
Equipment	X	X	
Labor	X	X	
<b>Evaluation Question 4</b>			
Women's rights	X	X	X
Decision making (HH)	X	X	X
Decision making (land related)	X	X	X
Time to resolve disputes affecting pastoralists	X	X	
Women, youth, and pastoralist tenure security	X	X	X
Village group meeting participation	X	X	
<b>Evaluation Question 5</b>			
Trees planted	X	X	
Income/Consumption	X	X	
Non-farm spending	X	X	
Soil conservation	X	X	
Land clearing	X	X	

## Quantitative Data Collection

### Baseline Data

Baseline data collection will consist of a household survey of smallholder farmers that targets the head of household (either male or female), as well as a separate instrument for wives or other adult women in the household. The survey will include questions measuring the outcomes of interest, as well as covariates to be used in the analysis; drafts of the survey instruments are presented in Annexes D and E. Data will be collected via face-to-face interviews, with enumerators making multiple attempts to contact each household if necessary. The questionnaire will take approximately two hours to administer. Data collection will be sensitive to household gender dynamics, with the questionnaire for female household members administered separately from male household members by a female enumerator. The IE team will work with USAID to develop village printed maps that may be used for sampling households within villages, and for recording the location of households so that they can be re-contacted in later survey rounds.

Data collection will take place in three rounds. The first round, scheduled for early 2017, will collect baseline data from 15 treatment and 15 control villages in Phase I, with 25 respondents per village for a total of 750 respondents. The second round in late 2017 will collect follow-up data from the same Phase I respondents, as well as baseline data for the 15 Phase II treatment and control villages, again with 25 respondents per village for a total of 750 respondents. Finally, the endline round will collect follow-up data from the same respondents in all treatment and control villages in 2019, which USAID requested because the control villages in Iringa are scheduled to receive assistance for customary certification.

### **Endline Data Collection**

Although endline data collection was originally planned to take place 12 to 24 months after the implementation of the LTA activity ends – long enough for any income and behavioral effects to accrue – the evaluation schedule has been amended from the original design. Endline data collection is expected to take place in November 2019 to account for the potential scaling up of tenure certification activities in Iringa in early 2020. Endline data collection will survey the same households from whom data were collected during baseline; as described below, qualitative data will be collected in targeted interviews after panel survey data collection is completed. The endline survey will include the same questions related to the key outcomes as the baseline survey to gauge the change in responses between survey rounds.

In addition to survey data, in the analysis stage the IE team will investigate the potential to incorporate other sources of biophysical data (e.g., Land PKS) and climatological data that may allow more accurate measurement of agricultural outcomes.

### **Qualitative Data Collection**

Incorporating qualitative analysis can play an important role in an evaluation by investigating the “how” and “why” questions that can provide contextual enrichment and explanation for quantitative findings, as well as illustrative cases and anecdotes that contribute to a more compelling presentation of the findings. In addition, qualitative analysis can be used to consider outcomes and impacts of interest that are not amenable to quantitative analysis.

Methods such as key informant interviews, focus group discussions, or group interviews, will be employed at endline to collect qualitative data from LTA activity beneficiaries and non-beneficiaries. The evaluation team may also conduct interviews with key activity stakeholders including staff from the national- and municipal-level government, USAID, DAI, and village executive officers. The qualitative component will be carried out after preliminary analysis of the quantitative data, so that the qualitative component can investigate explanations behind the quantitative findings. In addition, qualitative work will include document review and interviews with DAI to understand how they implemented the activity, any deviations from the originally anticipated approach, and any variations in the implementation approach across sites or over time.

Gender- and vulnerable population-sensitive interview techniques will be used to ensure that discussion leaders and interviewers are from the participating demographic group, when possible. When conducting focus groups, the evaluation team will work to ensure diversity of ages, gender, and income levels in focus group participants.

The specific topics and approaches to qualitative data collection for this evaluation will be informed by the quantitative findings, but may include:

## Land Tenure-Related Knowledge, Attitudes, Practices

While the IE will provide insight into average effects of the LTA activity, it will be important to learn about the unique perceptions of land tenure certification in the beneficiary and non-beneficiary villages. Qualitative research will aim to understand how those exposed to the LTA activity viewed it, how and whether their attitudes toward their land, investment, and their neighbors changed, and whether the presence of the activity affected any of their farming practices, how they exchange land, views toward land certification and land rights, and views of themselves and others. Similarly, gaining an understanding of how land issues are perceived in villages that could have received the LTA activity, but did not, will provide additional insight into the activity's impact and provide details that could inform scaling and future activities.

## Empowerment and Disputes

Although there are ways to measure internal household and intra-village dynamics with quantitative data, the nature of these relationships is often complex. Qualitative data collection on empowerment, particularly as it relates to decision making, feelings of representation, and perceptions of respect, can complement quantitative outcome metrics and provide details on the specific ways the activity may or may not have affected beneficiary households, specifically women. Similarly, qualitative data collection may provide more information on how and whether the LTA activity affected the presence, frequency, and resolution of disputes. Talking with people in villages that received the LTA activity will help the evaluation team gain a better understanding of how mobile provision of land certification actually worked to affect disputes.

# SAMPLING PLAN

## Minimum Sample Size

As with any quantitative analysis based on survey data, the required sample size is determined by a mathematical calculation that depends on a number of factors. These include features of the study design, properties of the data and outcome variables, and the desired precision of the analysis. In practice, calculating the required sample size requires choices and assumptions about a range of these parameters. This section presents required sample sizes under various assumptions and parameters, and suggests a recommended sample size that fits within a realistic budget for data collection.

As described above, implementation will follow a phase-in design with half of the treatment and control villages selected in Phase 1, and the other half in Phase 2. As a result, the LTA IE differs from a standard IE set-up. The evaluation team thus carries out the power calculations using Monte Carlo simulation methods suggested by McConnell and Vera-Hernandez (2015). This approach is to generate a large number of simulated datasets (in this case 500) that mimic the phase-in set-up, under this IE's specified parameters and assumptions, such as the fact that the number of clusters (i.e. villages) was determined ex-ante by the DLO and LTA implementation team. The simulation then carries out the statistical estimation of impact, and records the cases in which a Type II error, or the likelihood of not finding an effect when there was one, has occurred. The statistical power is then given by the proportion of Type II errors over the 500 simulations. Annex F provides more detail on the power calculations.

Table 5 shows the required effect sizes for each intra-cluster correlation (ICC), or how much variation there is within each cluster (i.e., village); a low ICC, such as 0.01, suggests that households are relatively different from each other, while a higher ICC, such as 0.20, suggests that households are relatively

similar to each other. Table 5 shows that the evaluation would be sufficiently powered with a minimum detectable effect size (MDES) of 0.25<sup>12</sup> (0.8184 > 0.8), but underpowered for a MDES of 0.2 (0.6627 < 0.8). The cells highlighted in blue in Table 5 show the MDES and ICCs required to achieve sufficient statistical power. An effect size of 0.25 or higher is reasonable given the outcomes of interest for the LTA activity and is in line with the limited studies available (see Goldstein, et al 2015). By comparison, two recent USAID evaluation design reports for land tenure projects assumed MDES ranging between 0.29-0.39 and 0.27-0.33 respectively for household-level outcomes<sup>13</sup>, but may not be sufficient for tertiary outcomes with higher ICCs, such as outcomes related to what farmers grow (since most farmers likely grow similar crops resulting in a higher ICC).

**TABLE 5: STATISTICAL POWER BY EFFECT SIZE AND ICC**

		Minimum Detectable Effect Size				
		0.10	0.15	0.20	0.25	0.3
ICC	0.01	0.3912	0.7126	0.8842	0.9800	1.0000
	0.05	0.3014	0.5629	0.7605	0.9222	0.9840
	0.10	0.2395	0.4451	0.6627	0.8184	0.9441
	0.15	0.1956	0.3513	0.5669	0.7725	0.8922

A standard baseline panel household or agricultural plot owner survey of a total of 750 respondents from treatment and control villages will take place in early 2017 (the first year of the evaluation). A second baseline survey of 750 households or plot owners would follow in late 2017 as well as a follow-up round of data collection with the 750 Phase I baseline households. The goal of the follow-up survey round for Phase I respondents during the Phase II baseline is to obtain data that can explain potential observable differences that may arise between Phase I and Phase II and that could result in different outcomes at endline. However, due to subsequent LTA activity implementation timeline changes that occurred between Phase I and Phase II, it is unlikely that these differences will be comparable since they will be between two different seasonal and contextual timeframes, rather than the same season and context a year apart. Having additional observations from a follow-up Phase I household data collection round also improves the likelihood of accurately detecting an effect. The final endline of all 1,500 treatment and control households would then take place in late 2019.

Overall, the simulation suggests that the currently envisioned phase-in design should be sufficient for measuring many of the outcomes of interest, but may present difficulties for those outcomes for which the anticipated effect size is small and/or ICC is relatively high (for example, agricultural productivity as measured by crop inputs, quantities, and mixture).

## Household Selection

The local survey firm will collaborate with the evaluation team to randomly select 25 households from each of the treatment and control villages in each phase of baseline. The evaluation team will work closely with the local survey firm to develop a survey protocol for selecting households. Given that there are often no formal listings of household members and their locations, a random walk using the village center or meeting house as a starting point, or similar methodology, may be employed.<sup>14</sup>

<sup>12</sup> Sample attrition (i.e., cases in which baseline respondents cannot be re-located in later survey rounds) may reduce the MDES in practice.

<sup>13</sup> See *Community-Based Forest Management Program Impact Evaluation Design Report* and *TGCC Zambia Climate Smart Agriculture Impact Evaluation Design Report*, both produced by the Cloudburst Group for USAID.

<sup>14</sup> For a discussion of the theory and practice of random walks, see Thompson, Steven K. "Targeted random walk designs." *Survey Methodology* 32, no. 1 (2006): 11.

Although LTA will seek to carry out mapping and other activities systematically, it is expected that there will be some cases in which individual land users do not ultimately receive CCROs for their parcels. Such cases could include absentee land users, or parcels with disputes that cannot be resolved. Data collection and analysis will not exclude such cases, in order to avoid bias due to self-selection into treatment; this approach is known as “Intent to Treat.” As only a small minority of parcels are expected to fall into this category, this is not anticipated to substantially affect the results, but the IE team will be explicit in the final evaluation report that this approach has been used.

## DATA ANALYSIS METHODS

The analysis plan for quantitative data collected under this IE will employ two separate modeling approaches to estimate treatment effects using the survey data. The first will use panel data regression models, while the second uses continuous treatment estimators. Using two different modeling approaches will allow the results of each model to be corroborated with the other to allow for robust inference. Findings that are consistent across both modelling approaches increase the confidence that findings are due to causal impacts of the activity, rather than the assumptions of the statistical model. For both modelling approaches, a separate model will be estimated for each of the outcome variables under consideration.

The phase-in structure of implementation has important implications for the modelling approach. Since data will be collected in different time periods, the analysis will need to devote careful attention to investigating how circumstances at the time at which data were collected may drive differences in outcomes. In addition, the analysis will include robustness checks that explore interaction terms between the time period and the control variables and treatment effect.

### Panel Regression Models

Panel regression models are a standard approach to estimating treatment effects in the context of a difference-in-difference set-up. The model includes a range of covariates to control for any observed differences in the treatment and control groups, as well as fixed or random effects that can control for time-invariant unobserved factors as well. The treatment effect is estimated by a regression coefficient on a dummy variable that interacts time and treatment. For the “base case” of continuous outcome variables at the household level, the panel regression models will be of the following form:<sup>15</sup>

$$Y_{it} = \gamma_0 + \gamma_1 X_{it} + \gamma_2 \delta_t + \beta(\delta_t * T_i) + \gamma_i + \varepsilon_{it}$$

Where:

$Y_{it}$  is the outcome of interest for household  $i$  at time  $t$ ,

$X_{it}$  is a vector of covariates,

$\delta_t$  is a dummy variable equal to 1 at the endline,

$T_i$  is a dummy variable equal to 1 for members of the treatment group,

$\gamma_i$  is a vector of household-level fixed or random effects

$\varepsilon_{it}$  is a random error term,

and the  $\gamma$  and  $\beta$  are parameters to be estimated.

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<sup>15</sup> The “base case” will be modified for different outcome variables at the individual and parcel levels. For discrete outcomes, the IE team will use non-linear models such as probit or logit. In cases where outcomes measures are ordinal or categorical, the IE team will convert these into binary measures depending on the nature of the question and distribution of responses. In addition, the IE team will use the data to assess whether a fixed or random effects models are statistically appropriate in each case.

The estimate of impact is then given by  $\beta$ , which reflects the Average Treatment Effect. Under standard assumptions,  $\beta$  provides an unbiased estimate of the causal impact of the activity on the outcome Y. The estimation will consider spatial correlation of the error terms, for example by clustering at the village level or by reporting Conley standard errors.

## Continuous Treatment Estimators

While implementation is divided into 15 villages at Phase I and 15 at Phase II, it is important to bear in mind that implementation in each phase will be carried out sequentially, rather than in all villages simultaneously. That is, in each Phase implementation will begin in a smaller number of villages, and then move on to another set of villages once implementation has been completed. This sequencing provides a source of variation in time since treatment that IE may be able to exploit. The analysis for the IE will thus also include a continuous treatment model. This type of modelling approach has been used in a number of empirical studies; for example, Keswell and Carter (2014) exploit variation in the time required for applications to be approved to measure the impact of a land reform program in South Africa. While a continuous treatment model could potentially improve the precision of the model and allow for the effects of treatment over time to be measured, it is important to bear in mind some potential limitations. In particular, while villages included in each phase will be selected randomly, it is unlikely that the sequencing of villages within each phase can be randomized, as this would have cost and logistical implications for implementation. The evaluation team will coordinate with the implementation team to explore how sequencing can be structured in a way that minimizes potential bias without imposing additional costs or logistical requirements on implementation.

For both empirical approaches, there is a wide range of modeling specifications that could be considered appropriate, and for which the literature does not indicate a single preferred approach. For example, many different sets of control variables may be plausible in the regressions, binary variables may be defined in different ways, logs of continuous variables may be used, or the data may not conclusively suggest fixed or random effects. The approach for the IE analysis will be to conduct a wide range of robustness checks under various specifications to ensure that the specification is robust and is not driven by the choice of assumption. The IE team will summarize and report the robustness checks in an annex to the final report. Robustness checks will also include spatial lag models to investigate potential spillover effects to control villages. In addition, the final results will consider the multiple testing problem and use Bonferroni corrections where appropriate.

Finally, both models will be used to conduct heterogeneity analyses to assess whether the impacts of the activity differ for subgroups of interest such as female-headed households, pastoralists, or the poor. The heterogeneity analysis will consist of estimating models separately for the subgroup and for the rest of the sample, and testing for statistical differences between the coefficients. In interpreting the results of the subgroup analysis, particular attention will need to be devoted to the potential for unobserved variables to drive the results, and power issues due to the smaller sample sizes of the subgroups may limit the extent to which differentiated impacts can be identified.

# DATA QUALITY ASSURANCE

## Survey Pre-Test and Translation

All survey instruments, including informed consent scripts, will be prepared in both English and Swahili prior to use in the evaluation. They will be pre-structured and use simple, straightforward language, and will include both closed- and open-ended questions. Instruments will be translated from English to Swahili by an experienced translator. The translation will then be back-checked by another individual. Given that electronic tablets will be used, the questionnaire will be programmed into devices and pre-tested for accurate format, capture, and processing of data.

The baseline and endline survey instruments will be pre-tested among 50 households within Iringa District but in different villages than the study area to ensure comprehensibility and appropriateness. Any necessary changes will be made by the local survey firm to the final survey instruments in consultation with the evaluation team.

## Enumerator Training

The evaluation team will direct the survey firm's supervisors on study procedures and survey content, and will also attend enumerator training prior to the start of data collection. The training session is expected to last at least five days and will focus on reviewing and understanding the questionnaire, the survey methodology, tablet use (unless paper surveys are used), and surveying techniques both in the classroom and in the field. The training will include one day of field training. The enumerator team will consist of individuals with prior experience conducting in-person surveys, ideally in a rural setting, and who are fluent in Swahili.

## Quality Control

The survey research firm will follow standard operating procedures for data collection including verification procedures conducted both at the site and at its headquarters, double entry of survey data (if paper surveys are used), and data query. Efforts will be made to collect data via computer-assisted personal interviewing (CAPI) instead of paper surveys, in order to minimize data entry errors and improve real-time data quality assurance.

Specifically, it is expected that the survey firm will employ the following set of quality control procedures:

- A field manager and supervisors will ensure all enumerators follow the agreed timeline and procedures; when issues arise, the field manager will be involved to find a proper solution.
- The supervisors will accompany the enumerator teams for at least 10 percent of the interviews to be conducted.
- If paper surveys are used, each supervisor will review all completed questionnaires on site, including reading through all questions and answers in the questionnaire to ensure that there have been no blanks, skip mistakes, logical inconsistencies, etc. If the supervisor notices missed questions, there is no logic, or the writing is not clear, such questionnaires will be returned to interviewers. In some cases, interviewers will have to make a repeat visit or a repeat call to the respondent to clarify some answers.
- Controllers/inspectors will be independent from the interview process and will conduct back-checks of at least 10 percent of the completed surveys. Surveys to be back-checked will be

selected randomly, stratified by enumerator to ensure each one is checked on a largely equal basis. During the repeat interview, several validation questions will be asked: interview date, interview duration, answers to several questions, interview location, etc. If everything is fine, all interviews of the particular enumerator are approved. If there is any doubt, 100 percent of questionnaires of the particular enumerator are checked.

- If paper surveys are used, once completed surveys are sent to the survey firm's headquarters, another inspector will review for completeness and adequacy prior to data entry.

The evaluation team will provide additional oversight and monitoring of the quality of data collected by the enumerators and the quality of supervision performed by the survey supervisors, including:

- Back-checks on a random sample of surveys (at least 5 percent of all completed surveys) using a subset of the survey questions. Any errors found will be consulted with the enumerator and immediately rectified. In some cases, interviewers will have to make a repeat visit or a repeat call to the respondent to clarify some answers.
- If paper surveys are used, continuous revision of a random sample of completed surveys that have not been back-checked or accompanied. Any errors found will be consulted with the enumerator and immediately rectified.
- Accompaniments of enumerators during interviews at regular intervals. The local coordinator on the evaluation team will observe the enumerators' familiarity with and comprehension of the questionnaire and clarity in asking questions. If the evaluation team perceives any need for additional training, it will coordinate with the supervisors and arrange for immediate additional briefings and training.

## Data Entry

If surveys are conducted via CAPI, data will be collected using KoboCollect or a similar survey software, but observation forms may require hard copy data sheets or will be collected via smartphone or tablet survey software.

Data will be copied into Stata or similar software for analysis. Where any data entry is required, all data will be entered twice by separate data entry staff and compared to minimize data entry mistakes. Confidentiality of all study participants will be protected, with personal identifying information stored separately from the rest of the data. All survey data will be password protected. All data collected at the field level will be managed by the evaluation team and overseen by the E3 Analytics and Evaluation Project Home Office team.

# DATA MANAGEMENT PLAN

## File Architecture

The final evaluation outputs will have a well-organized folder structure and clear, descriptive, and unique file names. The evaluation data and the information derived from it will be organized and archived in files that can be easily reviewed, audited, reused, and shared among relevant stakeholders.

The file architecture will be designed depending on type of data collected, analyzed, and reported. All data will be sorted and organized according to the mechanism used to generate it, such as spreadsheets resulting from survey questionnaires, and transcripts and notes from interviews.

## Data Storage and Backup

All data generated from this evaluation will be deposited in a unified, cloud-based digital repository such as Egnyte. The backup of the dataset and deliverables will be kept in a separate drive in-house. This will ensure that all data are easily captured and that members of the evaluation team have immediate access to the data as necessary. All data collected at the field level will be managed by the evaluation team and overseen by the E3 Analytics and Evaluation Project Home Office team.

## Data Format and Sharing

The evaluation data and information will be converted to the appropriate formats and shared with USAID per Automated Directives System (ADS) 579 requirements and guidelines. To ensure transparency and replicability, all data will be submitted as annotated datasets clearly defined with codebooks and annotated analysis of files.

Structured quantitative data will be stored in a non-proprietary, machine readable (.csv) format. Metadata will be generated in the form of codebooks and data summaries. Unstructured qualitative data, such as interview transcripts, will be stored in text-based data entry templates. The final, anonymized dataset will be compiled and submitted to the USAID Development Data Library (DDL) in accordance with ADS 508 and ADS 579.

## Privacy and Confidentiality Considerations

### Informed Consent

The evaluation will obtain informed consent from respondents before carrying out any data collection in households. A consent form will be used that will be translated into Swahili and then back translated into English, and piloted to ensure clarity before use in the field. Subjects will read or be read the form in Swahili. Scripts for interacting with participating households, survey instruments, focus group scripts (if applicable), and all other data collection materials are subject to ethical approval before use. Careful attention will be paid to ensure that respondents understand that their responses will be used for research purposes and are expected to be made public without compromising their confidentiality and anonymity.

### Ethical Approvals

In-country approvals from COSTECH, the Tanzanian research review board, will be obtained as needed directly by the evaluation team, and in close coordination with USAID and DAI.

# STRENGTHS AND LIMITATIONS

The scope of the LTA activity presents several challenges and opportunities to assess the impact of the mobile provision of land tenure. The proposed evaluation as described in this document is expected to make an important contribution from the standpoint of both the learning and accountability objectives of the USAID Evaluation Policy.

The strengths of the evaluation design are expected to include:

- **Study design.** The expected use of an RCT design will provide rigorous causal attribution of the LTA activity to the outcomes of interest, minimize bias from unobserved factors, and add to

the evidence base on land tenure interventions, an area where only a limited amount of research has been conducted. Using a phase-in design with random assignment at each phase will allow for the evaluation to maintain its internal validity while adjusting to potential contextual changes among the villages. This design also provides the opportunity to potentially measure intermediate impacts at the end of each phase as well as longer-term outcomes at endline for all phased-in villages.

- **Scope.** The multi-village implementation of the LTA activity will allow the evaluation team to see how land tenure affects investment, empowerment, and land security beyond a “pilot stage” test. By examining at least 30 villages in the evaluation of the LTA activity, this study could help inform potential land tenure interventions for the rest of the SAGCOT region.
- **Policy impact.** A rigorous evaluation of the LTA activity will provide a strong base of support for the ways policy makers can address land tenure reform, especially for the GOT as it tries to promote greater agricultural investment.

However, a number of limitations of the evaluation design should be borne in mind. Some of the main anticipated challenges, along with how they may be addressed by the evaluation team, are described briefly below.

- **Unable to compare MAST methodology to other methods.** This evaluation is not designed to assess how the medium of CCRO delivery affects perceived land tenure security, investment, and empowerment. For example, it could be that *any* intervention that promotes land tenure security via CCROs has an impact, whether it utilizes mobile technology or not. This evaluation will analyze the impact of receiving CCRO delivery via MAST compared to not receiving CCROs. Given the way the LTA activity is structured, there is currently not an opportunity to compare the impact of CCRO delivery via MAST to CCRO delivery via traditional or other methods. This evaluation will be designed to answer questions about perceived tenure security, and the evaluation team will make sure that the final evaluation report is clear in defining the scope of the evaluation. A separate study commissioned by USAID/E3/LU and implemented by the E3 Analytics and Evaluation Project is examining the cost and time effectiveness of MAST as compared to other approaches.
- **Limited observations.** This evaluation is designed to examine 30 total treatment villages where the LTA activity is implemented and 30 control villages. While the evaluation team expects that this will allow for a sufficient sample size to detect impacts on outcomes of interest, particularly tenure security, investment, and empowerment, a larger number of villages would be ideal and the small number of villages presents risks for being able to make causal linkages of the activity to certain outcomes and impacts further down the causal chain. For example, sustainable land clearing practices will ideally lead to lower greenhouse gas emissions, but it is doubtful that the effects of this can be measured within the timeframe and from the limited number of villages under study. The evaluation team will address this issue by measuring more proximate outcomes and indicators highly correlated with impacts that take longer to accrue, such as women’s involvement and attendance at village meetings as a proxy for overall empowerment and standing.
- **Bias from phase-in design.** While the phase-in design will allow the evaluation to adjust to changes in the village context from year to year, this design does create room for bias. There are potential anticipation effects, where individuals in villages not yet phased-in change their behavior in anticipation of receiving the LTA activity, and John Henry effects among the control group, where individuals in villages not yet phased-in change their behavior in response to the knowledge that certain villages are receiving the LTA activity. The extent to which this undermines the validity of the design depends on the severity of the anticipation and/or John Henry effects, but evidence of the former can be measured and accounted for (see Malani and

Reif 2010) and evidence of the latter is largely theoretical (see McKenzie 2013). The use of data from field reconnaissance and the initial baseline may also provide a way to track whether there is a behavioral effect from the design. Proper coordination and communication between the evaluation team, DAI, USAID, and the Iringa DLO can help mitigate these potential threats to estimating the LTA activity's impact.

- **External validity.** The nature of the LTA activity imposes limitations on the external validity of the evaluation (i.e., the extent to which the evaluation findings can be expected to predict the impacts of a program like LTA undertaken in a different area). First, the activity is limited to the Iringa district only, so other districts of Tanzania with different agro-ecological conditions, issues related to land and land disputes, or other factors may experience different impacts from a program like LTA. In addition, DAI ruled out several candidate villages for implementation reasons, primarily due to remoteness. As a result, the IE findings may not apply to villages in Iringa that are particularly remote.

One of the most important contributions of this IE is its rigorous design, since there have been few experimental studies on the impact of land formalization to date. The evaluation as originally designed would collect data at regular annual intervals for Phase I and Phase II. This approach would provide a general perception of how villages in Phase I changed over the course of a year, and allow for comparisons between Phase I and Phase II village statistics. The subsequent change in LTA implementation for Phase II, which was originally planned to take place in 2018 but LTA rescheduled for late 2017, means that baseline Phase I and baseline Phase II will not necessarily be comparable. Seasonal differences, village context, and recall regarding harvest and income are all likely to be different between the two baseline groups. Phase I baseline took place at the height of the rainy season, which is when villagers are often busy with farming activities and planning, while Phase II baseline is taking place in the dry season, when villagers are have sold or are selling their harvest, or are simply conducting different kinds of farm and village activities. The concerns around this change were summarized to USAID in a memo provided in Annex G. There are two main challenges that this phase of the evaluation must address given the changes to the LTA implementation timeline:

- **Ability to Detect an Effect:** The IE design uses a panel survey, with respondents interviewed at the same time of year before, during, and after LTA implementation to rigorously estimate LTA's impact and compare it to villagers in the control group. The requirements to survey households at the same time of year and to conduct a midline survey of Phase I households are critical for the statistical power of the IE (i.e., its ability to detect an effect where one occurred). The change in timeline for baseline data collection, and potentially reducing the number of villages included in the IE, will reduce the rigor of the IE design and increase the likelihood that the evaluation will not be able to detect any impact of the LTA interventions. While the IE can attempt to address the timeline change through statistical weighting and other approaches during analysis, any estimation of impact will be sensitive to the estimation methods beyond what was originally proposed and it is doubtful that the IE could make up for the loss of statistical power that would result from these implementation changes.
- **Bias:** The new LTA implementation timeline will introduce bias into the responses of household survey respondents, given the very different survey contexts. Phase I baseline took place during the rainy season in Iringa District, but with baseline data collection for Phase II now taking place in October 2017 it will be the dry season in Iringa, when village life and activities differ. The variance in responses between rainy and dry seasons, as well as the recall bias from people answering questions about spending, harvesting, and disputes, will also present estimation challenges during analysis. The IE's ability to control recall bias (e.g. respondents remembering with more precision their harvest amounts in October as compared to March), and even the perception of the survey at a different time of the year, are difficult to fully account for in the

analysis and will likely limit the comparisons that can be made between the first and second baseline groups.

## DELIVERABLES AND REPORTING

### Anticipated Deliverables

USAID’s SOW for this evaluation describes a set of deliverables that are listed in Tables 6 and 7. Should USAID fund the E3 Analytics and Evaluation Project to conduct endline data collection and analysis and prepare the final evaluation report, Table 7 shows those deliverables that the Project team would complete.

Due to the changes in the LTA implementation timeline that required a revised timeline for Phase II baseline activities for the IE, data analysis and reporting for Phase II will take place in December and January. Thus, the revised Phase II reporting timeline below is proposed to accommodate the holiday season in late 2017 and early 2018.

**TABLE 6: E3 ANALYTICS AND EVALUATION PROJECT DELIVERABLES (PHASE I & II)**

Deliverable	Estimated Due Date
1. Draft Evaluation Design Proposal	o/a October 26, 2016
2. Final Evaluation Design Proposal, including data collection and analysis methods, evaluation instruments, team composition, and proposed timeline	o/a February 28, 2017
3. Phase I Baseline Report (2017)	o/a 60 days following completion of Phase I baseline data collection
4. Fully cleaned, redacted, and documented Phase I baseline data submitted to DDL	o/a 90 days following completion of baseline data collection
5. Phase 2 Baseline Report (2017)	o/a 70 days following completion of Phase 2 baseline data collection
6. Fully cleaned, redacted, and documented Phase 2 baseline data submitted to DDL	o/a 90 days following completion of baseline data collection

**TABLE 7: ENDLINE DELIVERABLES**

Deliverable	Estimated Due Date
1. Draft Evaluation Report	o/a 60 days following completion of endline data collection
2. Final Evaluation Report	o/a 21 days following receipt of USAID comments on Draft Evaluation Report
3. Fully cleaned, redacted, and documented endline data submitted to DDL	o/a 90 days following completion of endline data collection

### Reporting and Dissemination

All members of the evaluation team will be provided with USAID’s mandatory statement of the evaluation standards they are expected to meet, shown in the following text box, along with USAID’s conflict of interest statement that they will sign and return to the Project Home Office where necessary before field work starts.

## USAID EVALUATION POLICY, APPENDIX I

### CRITERIA TO ENSURE THE QUALITY OF THE EVALUATION REPORT

- The evaluation report should represent a thoughtful, well-researched and well organized effort to objectively evaluate what worked in the project, what did not and why.
- Evaluation reports shall address all evaluation questions included in the scope of work.
- The evaluation report should include the scope of work as an annex. All modifications to the scope of work, whether in technical requirements, evaluation questions, evaluation team composition, methodology or timeline need to be agreed upon in writing by the technical officer.
- Evaluation methodology shall be explained in detail and all tools used in conducting the evaluation such as questionnaires, checklists, and discussion guides will be included in an Annex in the final report.
- Evaluation findings will assess outcomes and impact on males and females.
- Limitations to the evaluation shall be disclosed in the report, with particular attention to the limitations associated with the evaluation methodology (selection bias, recall bias, unobservable differences between comparator groups, etc.).
- Evaluation findings should be presented as analyzed facts, evidence and data and not based on anecdotes, hearsay or the compilation of people's opinions. Findings should be specific, concise and supported by strong quantitative or qualitative evidence.
- Sources of information need to be properly identified and listed in an annex.
- Recommendations need to be supported by a specific set of findings.
- Recommendations should be action-oriented, practical, and specific, with defined responsibility for the action.

The Project Home Office will also share with the evaluation team the Evaluation Report Checklist against which their draft and final reports will be reviewed internally prior to submission to USAID. This checklist is the one used to score USAID evaluations in the recent meta-evaluation of USAID evaluations completed between FY2009 and FY2012 (USAID 2013).

Information about the agreed-upon evaluation design will also be registered with the International Initiative for Impact Evaluation (3ie) through its Registry for International Development Impact Evaluations at <http://ridie.3ieimpact.org/index.php>.

USAID supports the publication of impact evaluation findings in peer-reviewed journals and encourages evaluation teams to consider early on what aspects of an evaluation might be of most interest to a larger audience. As part of the procedures developed under the E3 Analytics and Evaluation Project, the draft of this Evaluation Design Proposal is undergoing an external peer-review process. The evaluation team may also develop an abstract for an article that can be submitted to peer-reviewed journal(s) for potential publication, if USAID funds the Project team to carry out the endline research. The actual submission of such article(s) would be contingent upon the express written approval of the Contracting Officer's Representative.

To disseminate knowledge gained from this IE, oral presentations will be provided to specified audiences, such as USAID/E3/LU, the USAID/E3 Office of Global Climate Change, USAID/Tanzania, DAI, the GOT, the World Bank, or other donors as appropriate. A copy of the Final Evaluation Report will be delivered to the USAID Development Experience Clearinghouse (DEC) within 30 days of USAID's acceptance of the report and approval to post it on the DEC. The format of the Final Evaluation Reports will follow USAID guidelines set forth in the Agency's Evaluation Report Template (<http://usaidlearninglab.org/library/evaluation-report-template>) and the How-To Note on Preparing Evaluation Reports (<http://usaidlearninglab.org/library/how-note-preparing-evaluation-reports>).

During the review of this Evaluation Design Proposal, the E3 Evaluation and Analytics Project will discuss with USAID its preliminary Dissemination Plan for this evaluation. The final Dissemination Plan will be

determined by USAID in collaboration with the evaluation team that carries out endline data collection and prepares the final evaluation report. Depending on the availability of funding, dissemination activities may include:

- **Conferences:** Given the unique nature of this IE, there will be a wide audience for findings from the land tenure, agriculture, economics, environmental, and other sectors. The evaluation team will seek out opportunities, such as the World Bank Land and Poverty Conference, to share findings from the baseline and midline research for this IE.
- **Papers, briefings, and blogs:** In consultation with USAID/E3/LU, the evaluation team will consider how best to share findings within and beyond USAID. This could include 2- to 4-page briefing notes, submission of academic papers to peer-reviewed journals, or blog posts on USAID or other relevant websites.
- **In-Country Presentations:** It will be important that Tanzanian stakeholders and LTA beneficiaries learn about how the data and efforts of this evaluation resulted in a new understanding of land tenure. If resources are available, the evaluation team may consider delivering presentations or other dissemination events in Iringa for relevant stakeholders such as the DLO, as well as potentially finding ways to share the evaluation with residents in Iringa. Additional planning and coordination efforts will be needed should USAID wish to pursue this option.

## TEAM COMPOSITION

A small core team is envisioned to carry out baseline activities for this IE, with support from additional researchers, analysts, and the home office teams from the E3 Analytics and Evaluation Project implementing partners. The specific qualifications and roles anticipated for each core team member are listed below, and CVs for these team members are provided in Annex B. The Principal Investigator for this IE changed between Phase I and Phase II, as noted below.

In addition, the team will be supported by a local survey research firm that MSI is currently subcontracting and will have experience in the conduct of household surveys at the village level.

### Phase I Principal Investigator

**Ben Linkow** served as the Phase I Principal Investigator for this IE. Dr. Linkow holds a PhD in Agricultural and Applied Economics from University of Wisconsin-Madison and is currently a Senior Research Scientist in the International Programs Division at NORC at the University of Chicago. Dr. Linkow's expertise includes evaluating land tenure and property rights in sub-Saharan African countries. In addition to this IE, Dr. Linkow's work includes IEs of the Millennium Challenge Corporation's land tenure program in Namibia and USAID agriculture and youth empowerment projects in Kenya. Dr. Linkow has published articles on land tenure security in Burkina Faso, property rights in Liberia, and an impact evaluation of Yes Youth Can, the largest USAID program in the world. Dr. Linkow was primarily responsible for the quality of the evaluation design and its execution through Phase I, particularly with respect to the evidence obtained on questions involving causality and the attribution of outcomes to LTA.

### Phase II Principal Investigator

**Lauren Persha** will serve as the Phase II Principal Investigator for this IE. Dr. Persha is a land tenure, evaluation, and livelihoods specialist with more than a decade of experience designing and leading mixed

qualitative and quantitative research and providing technical evaluation expertise across land tenure; smallholder agriculture and rural livelihoods; local institutions; governance; and natural resource management sectors. She has led multiple impact or mixed methods performance evaluations of multi-sectoral development projects, most of which integrate large-scale household survey data with qualitative data. Dr. Persha has extensive experience with qualitative research design and data collection to complement quantitative evaluation results, including research and instruments design, and analyses methods that are tailored to enable gender-disaggregated impacts, and to understand how and why impacts differ for key vulnerable groups for each study context.

Dr. Persha holds a PhD in Environmental Science from Indiana University. Currently a Research Scientist at NORC at the University of Chicago, she was an Assistant Professor in the Geography Department at the University of North Carolina at Chapel Hill from 2011-2016. Her earlier development practitioner experience includes five years of project implementation with a UNDP-Global Environment Facility alternative livelihoods and forest conservation ICDP in East Africa. Her research has been published in journals such as *Conservation Biology*, *Forest Policy and Economics*, *Global Environmental Change*, and *Science*, and in 3ie's Impact Evaluation Report series.

Dr. Persha will be primarily responsible for overseeing the implementation of Phase II baseline and midline data collection, analysis, and reporting activities.

## Evaluation Specialist/Coordinator

**Jacob Patterson-Stein** holds a Master's Degree in International Development Policy and has over five years of global work experience in survey design, quantitative analysis, and designing and implementing impact evaluations. He has technical knowledge of different experimental and quasi-experimental evaluation methods, as well as practical experience managing the execution of these evaluations. In addition, Mr. Patterson-Stein has served as a consultant for the performance evaluation of a girl's education program in Liberia and conducted non-experimental quantitative evaluations of US Government loan programs targeting minority borrowers. Mr. Patterson-Stein is primarily responsible for overseeing and coordinating the execution of the evaluation design, ensuring efficient and timely reporting, developing and ensuring the timely submission of deliverables, and monitoring the fidelity of the evaluation design.

## Local Expert

**Gerald Usika** holds a master's degree in Agribusiness and has over six years of experience designing, managing, and implementing monitoring and evaluation systems. Mr. Usika is based in Dar es Salaam and has extensive experience working with bilateral and multilateral donors across Tanzania. Mr. Usika will primarily be responsible for interacting directly with LTA implementing partner staff, as well as with local survey research partners on technical matters when the Principal Investigator is not in the country, ensuring that data collection proceeds according to agreed-upon quality assurance standards, and providing regular progress updates to the E3 Analytics and Evaluation Project team. Additionally, Mr. Usika will assist with the development of survey instruments and training of enumerators. In the local expert role, Mr. Usika will assist with IE logistics, including acting as local study liaison with implementing and other partners and coordinating site visits; assist with and lead local submission of required ethics applications and secure other necessary local approvals, as needed; and support data management and communication to evaluation team members.

## Home Office Support

Home Office support by the E3 Analytics and Evaluation Project team members will be provided to the core evaluation team, including technical guidance, research assistance, quantitative and qualitative data analysis, administrative oversight, management of the survey research firm(s), and logistical support.

## USAID PARTICIPATION

Regular communication between the E3 Analytics and Evaluation Project team and the designated USAID Activity Manager for this evaluation will be essential to the successful execution of the evaluation activities. The evaluation team will keep USAID apprised of changes and developments that necessitate/require any significant decision-making or modification of the approved Evaluation Design Proposal.

While the evaluation activities are being designed in close collaboration with USAID and the LTA activity staff, at present it is not anticipated that USAID or implementing partner staff will participate as team members in the conduct of the evaluation activities. However, the evaluation team will work with USAID/E3/LU on geospatial analytics. USAID and implementation staff may be involved in field reconnaissance, but will not be responsible for evaluation team logistics.

## SCHEDULE AND LOGISTICS

### Estimated Schedule

The Gantt chart in Table 8 provides an overview of the anticipated timeframe for evaluation activities described in this document. It is expected that the E3 Analytics and Evaluation Project will collect concise baseline data in the second quarter of FY 2017, followed by ongoing monitoring and support during LTA activity implementation. Further discussions will be needed with USAID in terms of the specific timing for endline data collection, analysis, and reporting for this evaluation, should USAID fund the E3 Analytics and Evaluation Project to conduct the endline.

### Logistics

The E3 Analytics and Evaluation Project will be responsible for procuring all logistical needs expected under this evaluation, such as work space, transportation, printing, translation, and any other forms of communication. USAID will offer some assistance in providing introductions to partners and key stakeholders as needed and will ensure the provision of data and supporting documents as possible.

**TABLE 8: ESTIMATED EVALUATION TIMELINE**

Tasks	FY 17				FY 18				FY 19				FY 20				FY 21			
	Q1	Q2	Q3	Q4																
Survey Pre-Test																				
Enumerator Training																				
Baseline Data Collection																				
Baseline Data Analysis & Report																				
Oral Presentation of Baseline																				
LTA Implementation (60%)																				
Phase 2 Baseline Data Collection																				
Phase 2 Data Analysis																				
Phase 2 Report																				
LTA Implementation (100%)																				
Endline Data Collection & Analysis																				
Endline Report																				
Draft Final Report																				
Oral Presentation(s)																				
Final Report																				

**TABLE 9: ESTIMATED DETAILED PHASE II DATA COLLECTION AND REPORTING TIMELINE**

ACTIVITY	TIMELINE																					
	MONTH (2017)	September				October				November				December				January				Feb
	WEEK	4	11	18	25	2	9	16	30	6	13	20	27	4	11	18	25	1	8	15	22	29
Drafting of the survey work plan																						
Questionnaire review																						
Scripting of the survey questionnaire																						
Recruitment of pretest team																						
Pretest team briefing																						
Pretesting																						
Cleaning of pretest data																						
Finalization of survey questionnaire based on pretest results																						
Recruitment of survey enumerators																						
Enumerator training, piloting, and pilot de-brief																						
Selection of final field team members and formation of field teams																						
Data collection																						
Data cleaning and analysis																						
Draft Phase II Baseline Report																						
Final Phase II Baseline Report																						
Post-report presentation and additional dissemination TBD																						

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# ANNEX A: STATEMENT OF WORK

## Impact Evaluation of the Feed the Future Tanzania Land Tenure Assistance Activity

This Statement of Work is for an impact evaluation commissioned by the United States Agency for International Development (USAID) that will examine the Feed the Future Tanzania Land Tenure Assistance (LTA) Activity.

### I. Project Information

LTA is a four-year activity awarded by USAID/Tanzania to DAI in 2015 and is a part of the Feed the Future (FTF) initiative. The LTA activity seeks to clarify and document land ownership, support land use planning efforts, and increase local understanding of land use and land rights in Tanzania. It is envisioned that the interventions carried out under LTA will reduce land tenure-related risks and lay the groundwork for sustainable agricultural investment for both smallholder farmers and commercial investors throughout the Southern Agricultural Growth Corridor of Tanzania (SAGCOT) and in the value chains of focus for Tanzania's FTF program.

The LTA activity was designed in line with the Government of Tanzania's (GOT) land tenure objectives to safeguard USAID's ongoing agricultural and economic growth investments and to protect the interests of the private sector and local communities. The activity seeks to achieve these goals by:

1. Assisting villages in completing the land use planning process and delivering Certificates of Customary Right of Occupancy (CCROs) through the use of open source mobile technology developed under USAID's Mobile Application to Secure Tenure (MAST) pilot activity;
2. Developing the capacity of village and district land governance institutions, and individual villagers, to complete the land use planning and CCRO process, effectively manage land resources, respect women's land rights, and build agriculture-related business skills through education and awareness-raising activities; and
3. Raising awareness of the MAST technology within the GOT, civil society, academia, and the private sector, with the goal of increasing uptake of the technology on a national level.

LTA is comprised of two larger activities (1 and 2) and two smaller activities (3 and 4), described below. Local sustainability is a critical component of the overall LTA activity. The goal of LTA is to empower district and village land institutions in targeted districts to carry forward the capacity development and land administration process independently (and with little or no outside financial support) once the activity concludes.

- Activity 1: Assist villages and district administrations in completing the land use planning process and delivering CCROs in select villages within two districts (Iringa and Mbeya).
- Activity 2: Educate and develop the capacity of village land governance institutions and individual villagers to complete the land use planning and CCRO process, effectively manage land resources, respect the land rights of women, youth, and pastoralists, and build agriculture-related business skills.
- Activity 3: Educate and develop the capacity of district-level land governance institutions in the Mbeya District to complete the land use planning and CCRO process; effectively manage land resources; respect the land rights of women, youth, and pastoralists; and build agriculture-related business skills.

- Activity 4: Develop capacity to use the MAST application throughout the SAGCOT and nationally.

DAI plans to implement LTA in five to six test villages over the summer of 2016. These initial villages are likely to be in Iringa District, due to Ministry preferences, but may be in Mbeya District as part of the LTA's capacity development activities. Full rollout of LTA is expected to occur in early 2017 in Iringa District, with at least 30 villages selected to receive the interventions.

## 2. Development Hypothesis

USAID envisions that if the LTA activity clarifies and documents land ownership, supports land use planning efforts, and increases local understanding of land use and land rights, then this will lead to increased agricultural investment, reduced land tenure risk, and more empowered people and local institutions. The LTA activity components work in tandem to promote inclusive agricultural development, food security and investment, and institutional capacity.

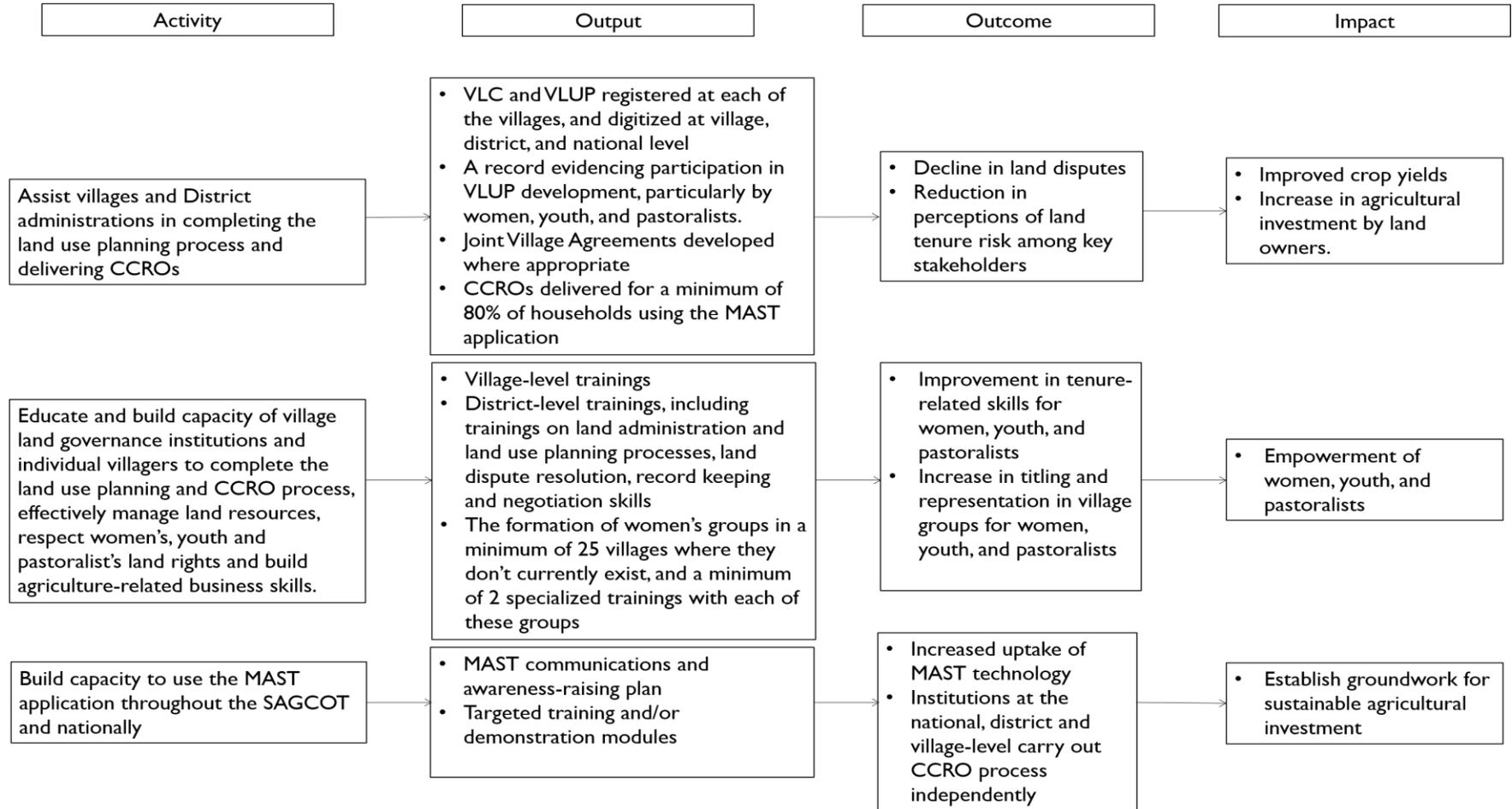
This section provides a preliminary version of the development hypotheses and causal linkages that the evaluation will consider, which will be refined and further elaborated in the Evaluation Design Proposal. Figure 1 illustrates the causal linkages that USAID envisions for translating results under each of the activities<sup>16</sup> into the LTA activity's intended intermediate and final outcomes and that this evaluation will be expected to examine. In this Theory of Change diagram, the proliferation of CCROs leads to increased investment and reduced disputes through improved perception of tenure security. As illustrated in the diagram, the possible hypotheses for examination within the LTA activity could include:

1. If villages and district administrations receive assistance for completing the land use planning process and delivering CCROs to formalize land rights, then disputes over land tenure will decline and crop yields will improve.
2. If village land governance institutions and individual villages are educated and trained on the land use planning and CCRO process, including on respecting the land rights of women, youth, and pastoralists, then women, youth, and pastoralists will experience an increase in titling, improvement in skills, and have better representation in their villages.
3. If the LTA activity develops capacity to use the MAST application throughout the SAGCOT and nationally, then communities and institutions at all levels will be able to sustainably certify land tenure, which will promote agricultural commercial activity and investment.

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<sup>16</sup> Only three activities are shown in the Theory of Change diagram, since Activity 3 is specific to Mbeya District, and this evaluation will largely focus on Iringa District.

**FIGURE I: THEORY OF CHANGE FOR THE LTA ACTIVITY**



### 3. Existing Performance Information Sources

The LTA activity is currently in its start-up phase and is developing an inception report that will outline its approach to implementation. There have been similar, albeit smaller scale, land rights interventions in Tanzania that utilize mobile technology,<sup>17</sup> but these have not been rigorously evaluated. The evaluation team has received limited documentation on the LTA activity's implementation plans to date, but USAID and DAI have committed to share all implementation reports, results frameworks, and survey materials as they become available.

USAID has already provided the evaluation team with the following documents and data related to the LTA activity:

- Scope of Work for the LTA Request for Task Order Proposals (RFTOP)
- USAID/Tanzania letter to the Ministry of Lands, Housing, and Human Settlement Development
- Iringa Village Data
- Iringa District Map with potential selection sites

The following additional documents have not yet been provided to the evaluation team but will be shared as the evaluation progresses:

- DAI proposal for LTA RFTOP
- Results framework from DAI for LTA
- All future quarterly and annual project management and progress reports prepared by DAI for LTA
- Copies or detailed descriptions of content of land tenure campaigns
- Documents pertaining to the certification, selection, and implementation of tenure projects
- Annual USAID/Tanzania LTRM Survey materials, including M&E data, sampling plans, and survey instruments

In addition to information provided by USAID and DAI, the evaluation team may need to access other types of secondary data, including administrative information on the relevant Tanzanian municipalities from a variety of sources, including Government of Tanzania (GOT) statistical agencies. The evaluation team will work with USAID and DAI as needed to obtain relevant introductions and permissions to access any such data that are needed.

### 4. Evaluation Purpose, Audience, and Intended Use

#### Purpose

The purpose of this impact evaluation is to provide USAID with an evidence base on the impacts of its investment in the LTA activity and also to build the evidence base on the impacts of land mapping, registration, and formalization in rural customary land tenure settings in Tanzania. The results of this evaluation will be made widely available to encourage replication within or beyond Tanzania, as applicable. As such, this evaluation will apply USAID's *Evaluation Policy* guidance with respect to using the most rigorous evaluation design and methods possible to demonstrate accountability for achieving results. The evaluation is also designed to capture practical lessons from USAID's experience with regard to increasing sustainable agricultural investment by securing land tenure through first-time registration.

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<sup>17</sup> Mobile technology refers to MAST, which uses open source code and readily available mobile technologies (e.g., GPS/GNSS-enabled smart phones and tablets) coupled with broadly participatory crowd-sourced data collection methods.

## Audience

The evaluation is aimed at several audiences. First, the findings are expected to be of value from an accountability and learning standpoint to USAID. Secondly, findings and lessons learned from this evaluation will also be of interest to the GOT, which aims to scale CCRO delivery rapidly across the country, and to DAI and other practitioners in the land tenure sector working to document customary land rights. Finally, the evaluation will be of interest to donors, implementers, and scholars more generally by making an important contribution to the evidence base on land tenure interventions.

## Intended Use

This evaluation will be used to inform the design of future donor and government activities that aim to improve tenure security and generate economic benefits by strengthening land rights. One such activity is the upcoming Land Tenure Support Program, a large-scale effort jointly funded by DfID, SIDA, and DANIDA.

## 5. Evaluation Questions

The evaluation will address a specific set of evaluation questions that will be developed and finalized in close collaboration between USAID/E3/Land, USAID/Tanzania, the evaluation team, DAI, and other stakeholders as appropriate. This SOW will be updated following final agreement on the evaluation questions.

In general, the evaluation questions are expected to focus on the impact of the LTA activity on four types of outcomes:

1. Investment: by improving tenure security and reducing disputes, LTA is also anticipated to stimulate small-scale agricultural investment. Stronger land rights increase landholders' confidence that they will be able to reap the benefits of investments in their land that pay off over time. Such investments may include small-scale irrigation technology, soil conservation measures, or switching to perennial crops such as coffee, cashews, or fruit trees. The existing evidence on the relationship between land rights and these kinds of investments shows considerable variation in the levels and types of impacts that are observed; a summary and meta-analysis of the evidence from West Africa is provided by Fenske (2011).
2. Perceived tenure security: an important outcome associated with LTA is the extent to which beneficiaries perceive the activity as having strengthened their land rights. In practice, this means that LTA should reduce beneficiaries' concerns that their land could be expropriated, or that they could face costly disputes related to their land. Measuring the activity's impact on these kinds of perceptions requires careful attention to the context, so that survey questions can be structured around the particular issues and concerns that beneficiaries face. A number of previous impact evaluations commissioned by USAID/E3/Land have considered these issues, and the impact evaluation of LTA will draw on these experiences in developing its approach to measuring tenure security.
3. Incidence of land-related disputes or disputes: in addition to changing perceptions, another outcome that the evaluation may consider is the actual incidence of disputes and disputes over land. As above, careful attention to context is needed in designing the approach to measuring these outcomes. While reducing land dispute is an important outcome, a potential challenge with measuring impacts on dispute is that interventions such as those under LTA can actually increase the incidence of land disputes in the short run. For example, disputes may arise in the course of establishing boundaries, or latent disagreements about land rights may rise to the

surface in the course of establishing formal claims. Such disputes were observed for the first MAST pilot site, with several reported cases of border disputes, intra-family disputes over ramifications for inheritance, as well as former residents returning to try to reassert old claims when they learned that land registration was occurring. In course of finalizing the evaluation questions, the evaluation team should assess the potential for the evaluation to accurately measure these kinds of outcomes within the anticipated timeframe for the evaluation.

4. **Empowerment:** the evaluation will also consider outcomes related to empowerment. Empowerment is often considered from the standpoint of potentially vulnerable sub-groups such as women, youth, or the poor, and can also be conceptualized more generally. A World Bank study by Alsop and Heinsohn (2005) defines empowerment broadly as “as a person’s capacity to make effective choices; that is, as the capacity to transform choices into desired actions and outcomes,” and presents a framework for measuring different dimensions of empowerment. In the context of LTA, strengthening land rights is expected to act on empowerment by improving security of assets that are critical to people’s lives in the household, community, and economy.

For the impact evaluation of LTA, empowerment outcomes are of particular interest in the context of gender. A recent paper by Allendorf (2007), for example, found that land rights are closely linked to women’s empowerment in Nepal. In addition, USAID has funded the development of The Women’s Empowerment in Agriculture Index (WEAI), which is widely used to measure women’s empowerment in FTF activities. The WEAI includes a battery of survey questions and methods to measure various dimensions of empowerment, and could be incorporated directly into the household surveys for the LTA impact evaluation.

The types of outcomes described above reflect changes in behaviors and attitudes that are expected to be measurable over a relatively short timeframe (approximately one to two years following the conclusion of implementation). LTA is also anticipated to potentially impact a broader set of economic outcomes in the longer term, as the benefits of these changes in behaviors and attitudes are realized over time. These include frequency of land transactions, access to credit, agricultural productivity, and ultimately improvements to household income, consumption, and food security. In light of the limited evidence base on the impact of land tenure interventions - particularly in a randomized controlled trial (RCT) setting – the evaluation may also examine these longer-term outcomes. One approach would be for the evaluation to include an initial round of follow-up data collection and analysis focused on the four intermediate outcomes above, with a second follow-up at a later date to measure longer term impacts. This would allow the evaluation to generate useful findings within one to two years of implementation, while still taking full advantage of the learning potential of a RCT to investigate broader economic outcomes.

## 6. Gender Considerations

In line with USAID’s Gender Equality and Female Empowerment Policy and Automated Directives System 203.3.1.5, the evaluation will consider gender-specific and differential effects of LTA. The evaluation team will disaggregate access and participation data by gender at multiple points along the Theory of Change diagram to analyze the potential influence these effects have on activities and outcomes. Data collected through surveys conducted under this evaluation will be gender-disaggregated to identify gender differences with respect to benefits and outcomes, as well as lessons learned from female title holders and farmers. The evaluation team will conduct further inquiry on gender themes as they emerge during data analysis.

## 7. Evaluation Methods

### Impact Evaluation Design

Impact evaluations identify activity impact by comparing outcomes between activity beneficiaries to those of a control or comparison group of non-beneficiaries. The control or comparison group is intended to represent the counterfactual, or what would have happened in the absence of the LTA intervention. As per the USAID Evaluation Policy, impact evaluations using experimental designs – whereby units are randomly assigned to treatment and control groups – provide the most rigorous evidence of activity impact, and this will be the preferred approach for the LTA impact evaluation. Where randomized assignment is not feasible, quasi-experimental impact evaluation designs can be employed as an alternative.

The evaluation team responding to this SOW will work with USAID/E3/Land, USAID/Tanzania, and DAI staff to develop a design that suits the objectives, timing, and constraints of the LTA evaluation. The evaluation team will produce an Evaluation Design Proposal to be approved by USAID/E3/Land prior to site selection or randomization taking place. It is expected that the evaluation questions will be answered using an experimental or, if necessary, quasi-experimental design, and that a mixed-method approach may be suitable to answer the evaluation questions.

### Data Collection Methods

A range of methodologies can be used in impact evaluations, and the most appropriate approach in any particular case depends on a variety of factors including the goals of the evaluation, the outcomes to be measured, the nature of the activity being examined and its implementation approach, and the resources and timeframe available for the evaluation.

USAID anticipates that data collection for this evaluation will involve the use of household-level surveys that cover all of the villages targeted for LTA. This is likely to include a baseline survey that would be conducted before major LTA interventions commence. The survey would collect information on basic demographics, household and individual characteristics, and the outcomes of interest that the evaluation will measure. The evaluation team responding to this SOW shall provide further details on data collection methods and the specific survey methodology in the Evaluation Design Proposal, including proposing specific data collection methods on a question-by-question basis.

Pending further discussion with USAID and DAI, data collection for this evaluation may also include collecting village-level information about potential activity sites that can be used to determine which villages may be eligible to participate in the activity.

## 8. Data Analysis Methods

In its Evaluation Design Proposal, the evaluation team responding to this SOW should propose specific data analysis methods on a question-by-question basis, including the appropriate mix of methods necessary to estimate the impact LTA has on the primary outcomes of interest. Potential data analysis methods include difference-in-difference and multivariate regressions. The Evaluation Design Proposal should also explain what statistical tests will be conducted on data collected to address all evaluation questions, how qualitative data will be analyzed, and whether that analysis will allow the evaluation team to transform some data obtained from qualitative into quantitative form.

The Evaluation Design Proposal should also indicate and justify the evaluation team's proposed sequencing of quantitative and qualitative data collection. For example, if key informant qualitative interviews are conducted during the endline data collection process, these lines of data may be collected and analyzed in parallel and only synthesized once data from all other sources are available.

## 9. Strengths and Limitations

The strengths and limitations of the LTA impact evaluation will depend on the final design proposed by the evaluation team in consultation with USAID and DAI. The final design should reflect a rigorous approach to answering the evaluation questions and contribute to the global knowledge on land tenure. One key contribution of this evaluation is that it is expected to specifically test the impact of LTA on women, youth, and pastoralists, which is a great contribution to the evidence base on land tenure and investment.

Sample size, activity reach, and implementation fidelity could all create internal validity limitations for this evaluation. Ensuring that the sample size achieves sufficient statistical power will be critical for identifying impact and answering the evaluation questions. In addition, ensuring that randomization is done properly and random assignment, if applied, is systematic will improve the internal validity of the evaluation but must be done in a transparent manner. Indirect contamination across treatment arms and control groups is always a possibility, which is why it is important for the evaluation team and the implementation team to coordinate from the outset.

## 10. Evaluation Deliverables

It is anticipated that the evaluation team responding to this SOW will be responsible for the deliverables listed in Table I. A final list of proposed deliverables and due dates will be included in the Evaluation Design Proposal for USAID's approval.

**Table I: Evaluation Deliverables**

<b>Deliverable</b>	<b>Estimated Due Date</b>
1. Concept Paper, describing design and methodological options to answer the evaluation questions	TBD in consultation with USAID
2. Draft Evaluation Design Proposal	TBD in consultation with USAID
3. Final Evaluation Design Proposal, including data collection and analysis methods, evaluation instruments, team composition, and proposed timeline	TBD in consultation with USAID
4. Baseline Report	<i>o/a</i> 60 days following completion of baseline data collection
5. Fully cleaned, redacted, and documented baseline data submitted to DDL	<i>o/a</i> 90 days following completion of baseline data collection
6. Draft Evaluation Report	<i>o/a</i> 60 days following completion of endline data collection
7. Final Evaluation Report	<i>o/a</i> 21 days following receipt of USAID comments on Draft Evaluation Report
8. Fully cleaned, redacted, and documented endline data submitted to DDL	<i>o/a</i> 90 days following completion of endline data collection

All documents and reports will be provided electronically to USAID no later than the dates indicated in the approved Evaluation Design Proposal. The format of the evaluation report should follow USAID guidelines set forth in the USAID Evaluation Report Template.

## 11. Team Composition

The Evaluation Design Proposal should describe the specific composition and qualifications of the team members who will be carrying out this evaluation, including CVs for core team members. General qualifications and roles anticipated for the primary positions on the core evaluation team are listed below. Local survey research firm(s) with experience in the conduct of household surveys at the village level and/or qualitative data collection may also support the evaluation team, as necessary.

### Principal Investigator

The Principal Investigator for this impact evaluation will hold a Ph.D. in a relevant economic development field. S/he will have previous experience with land tenure programs and will have previously served as a team leader for one or more impact evaluation(s). Familiarity with a range of impact evaluation designs and with USAID evaluation guidance will be sought for this position. Experience in publishing evaluation research in peer-reviewed journals is desirable, as is experience working in East Africa. A demonstrated ability to gather and integrate both quantitative and qualitative findings to answer evaluation questions is expected. Demonstrated experience managing multinational teams and producing highly readable reports for USAID and its developing country partner audiences on a timely basis is expected. This individual will be primarily responsible for the quality of the evaluation design and its execution, particularly with respect to the evidence obtained on questions involving causality and the attribution of outcomes to USAID's intervention. This is not anticipated to be a full-time position.

### Evaluation Specialist

The Evaluation Specialist should have a graduate degree in a relevant social science field and may be a Tanzanian national. The individual will have sufficient previous experience with evaluations and other types of studies involving sample surveys to be actively engaged in efforts to oversee and ensure the quality of multiple rounds of household surveys, that data codebooks are clearly written, and that all study data prepared by local survey research firms can be properly transferred to USAID. Gender analysis experience is also desirable. This is not anticipated to be a full-time position.

## 12. USAID Participation

The desirability of USAID participation in evaluation activities such as field reconnaissance will be considered in consultation with USAID and the evaluation team, and any specific roles and responsibilities of USAID staff will be described in the Evaluation Design Proposal.

## 13. Scheduling and Logistics

Figure 2 provides a preliminary timeframe for impact evaluation activities, which will be updated and refined by the evaluation team in its Evaluation Design Proposal. It is anticipated that implementation of LTA will occur at the start of FY17.

Figure 2: Preliminary Timeline for LTA Impact Evaluation

Tasks	FY 16		Implementation Period for LTA Project												FY 20				FY 21				
			FY 17				FY 18				FY 19												
	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	
Concept Paper																							
Scoping Trip																							
Evaluation Design Proposal																							
Survey Pre-Test																							
Enumerator Training																							
Baseline Data Collection																							
Baseline Data Analysis and Report																							
Oral Presentation of Baseline Findings																							
LTA Program Implementation (100%)																							
Endline Data Collection and Analysis																							
Endline Report																							
Draft Final Report																							
Oral Presentation(s)																							
Final Report																							

The evaluation team will be responsible for procuring all logistical needs such as work space, transportation, printing, translation, and any other forms of communication. USAID will offer some assistance in providing introductions to partners and key stakeholders as needed, and will ensure the provision of data and supporting documents as possible.

#### 14. Reporting Requirements

The format of the evaluation report should follow USAID guidelines set forth in the USAID Evaluation Report Template (<http://usaidlearninglab.org/library/evaluation-report-template>) and the How-To Note on Preparing Evaluation Reports (<http://usaidlearninglab.org/library/evaluation-report-template>).

The final version of the evaluation report will be submitted to USAID and it is anticipated that it will not exceed 30 pages, excluding references and annexes.

All members of the evaluation team will be provided with USAID’s mandatory statement of the evaluation standards they are expected to meet, shown in the following text box, along with USAID’s dispute of interest statement that they should sign before field work starts.

## USAID EVALUATION POLICY, APPENDIX I

### CRITERIA TO ENSURE THE QUALITY OF THE EVALUATION REPORT

- The evaluation report should represent a thoughtful, well-researched and well organized effort to objectively evaluate what worked in the project, what did not and why.
- Evaluation reports shall address all evaluation questions included in the scope of work.
- The evaluation report should include the scope of work as an annex. All modifications to the scope of work, whether in technical requirements, evaluation questions, evaluation team composition, methodology or timeline need to be agreed upon in writing by the technical officer.
- Evaluation methodology shall be explained in detail and all tools used in conducting the evaluation such as questionnaires, checklists, and discussion guides will be included in an Annex in the final report.
- Evaluation findings will assess outcomes and impact on males and females.
- Limitations to the evaluation shall be disclosed in the report, with particular attention to the limitations associated with the evaluation methodology (selection bias, recall bias, unobservable differences between comparator groups, etc.).
- Evaluation findings should be presented as analyzed facts, evidence and data and not based on anecdotes, hearsay or the compilation of people's opinions. Findings should be specific, concise and supported by strong quantitative or qualitative evidence.
- Sources of information need to be properly identified and listed in an annex.
- Recommendations need to be supported by a specific set of findings.
- Recommendations should be action-oriented, practical, and specific, with defined responsibility for the action.

## 15. Budget

The evaluation team responding to this SOW will propose a notional budget for this evaluation, including cost implications of the methodological options proposed. A full detailed budget will then be prepared for USAID's approval.

# ANNEX B: CVS OF EVALUATION TEAM

[redacted]

# ANNEX C: FIELD RECONNAISSANCE SURVEY INSTRUMENTS

## Village Executive Officer/Village Chairman Survey

Village Name

GPS Coordinates

Respondent Name(s)

Gender

Age (by title if multiple people are interviewed)

Official Position in Village

Language of Interview

General Notes

## VEO LEGAL AND ADMINISTRATIVE INFORMATION

Does the village have a VLUP (village land use plan)?

May I take a photo of the VLUP?

Enumerator: If a photo is not taken. Was the VLUP checked?

When was the VLUP completed?

Has anything in the village changed since the VLUP that would require it to be updated?

Have CCROs been issued to any villagers?

How many CCROs would you estimate have been issued?

VLUP or CCRO Notes

Which of the following land administration institutions are present at the village level? Select all that apply.

Are village officials aware of requirements for land use planning and land adjudication?

How many hamlets are in the village?

Has the village been subdivided recently?

When?

Why was the village subdivided?

What was the parent village?

Where any other villages created as part of the subdivision?

Was Village Land Use Plan before or after the subdivision?

When was the new VLUP created?

Have there been any discussions about subdividing the village in the future?

Why?

What is the population of the village (individual people)?

Notes

#### VEO INFRASTRUCTURE AND COMMUNICATIONS

How reliable is the supply of electricity?

How many hours of electricity does the village have each day?

How frequent are power cuts?

How long are power cuts? (enter number of hours)

Is there reliable cellphone service/receptivity in the area?

Which mobile providers have the best coverage?

What percentage of residents own mobile phones?

What percentage of residents know how to use smart phones?

Notes

#### VEO LANDSCAPE & TERRAIN

How many plots are there per person?

How many people per hamlet own plots?

What is the location of parcels relative to the village center?

Does grazing take place in the area where people farm?

Do the animals grazing belong to people who live in the village?

Notes

#### LAND DISPUTES

How much of a problem have land disputes been in the past year?

How much of a problem have land disputes been in the last five years?

Notes

Over the past one year have any of the following types of disputes over land occurred? (select all that apply)

Over the past five years have any of the following types of disputes over land occurred? (select all that apply)

Notes on land disputes

Are there any land disputes currently pending in local courts or the land resolution committee (Baraza la usuluishi la ardhi)?

How many land disputes do you estimate have been handled by the courts or the land resolution committee (Baraza la usuluishi la ardhi)?

How many land disputes have been handled informally/outside of the courts or the land resolution committee (Baraza la usuluishi la ardhi)?

For any land disputes that have occurred, how many have been violent or involved physical harm to one or both parties?

How many disputes have been resolved?

Are there any issues people encounter when trying to resolve land disputes?

Are you familiar with the land laws?

Have you ever had to use your knowledge of the land laws while handling a dispute? When?

Notes

## INVESTORS AND DONOR PROJECTS

Have you heard about people outside the village buying land in the village for business?

How would you describe these people?

Have there been discussions about people acquiring land in this village or nearby for business?

Can you provide more detail on what you have heard about these discussions or purchases?

Are there any projects funded by international donors, NGOs, or the government related to land or agriculture that are active in this village?

Who is doing the project(s)?

What is the project doing?

How many people in the village are participating in the project?

Notes

## ACCESSIBILITY

How far is the village from tarmac road (km)?

How far is the village from Iringa Town (km)?

What is the approximate travel time to Iringa Town by bus, car, or motorcycle?

What is the most common mode of transportation to Iringa Town?

What is the nearest service center/market town?

What is the approximate travel time to nearest market town by car, bus, or motorcycle? (enter time for all areas mentioned)

What is the most common mode of transportation to the nearest service center/market town?

Is Iringa Town inaccessible at all during the rainy season?

How long is Iringa Town inaccessible during the rainy season?

Notes

## EDUCATION

Are there at least 5 residents who have completed form 4 education?

What percentage of all villagers know how to read?

Notes

## MIGRATION

Is migration into the village common?

Over the past two years, how many people have moved into this village from other places?

When is in-migration most common?

Is migration out of the village common?

Over the past two years, how many people have moved away from this village to other places?

When is out-migration most common?

If someone comes to this village and wants land to farm, is there land freely available or would they have to pay for someone else's land?

Notes

## VILLAGE LAND MARKETS

What percentage of farmers in this village rent their land?

Do landowners buy and sell land in this area?

How many transactions occurred in the past year?

What is the typical price paid per acre?

Notes

Do people in the village know what CCROs are?

Do people in the village want CCROs?

Why do people want CCROs?

What is your opinion of CCROs? (Enter response, ask for details, record reaction to question)

Notes

## **Villager Survey**

Village Name

GPS Coordinates of Interview

Number of villagers in group interview

What crops are grown around the village? Select all that apply.

What are the most important crops grown around the village? Select all that apply.

Notes on Crops

Are there at least 5 village residents who know how to use smart phones?

Notes on smart phone usage

Are there at least 5 village residents who have completed Form 4 education?

Have you heard about people outside the village buying land in the village for business?

Is this something that has worried you or others in the village?

What worries you about people coming and buying land?

Are you concerned that it would be difficult to prove land ownership in the case of a land dispute or to obtain a loan?

Do people in this village know what CCROs are?

Has anyone from outside the village come to tell you about CCROs?

Who did you receive the information from?

Would people in this village like to have CCROs?

Why would people like to have CCROs?

Additional Notes

# ANNEX D: DRAFT BASELINE AND MIDLINE SURVEY INSTRUMENTS

## Outline

- A. Introduction and Consent
- B. Household Roster and Information
- C. Agricultural Organizations, Services and Training
- D. Land Holdings and Characteristics
- E. Agricultural Production
- F. Perceptions of Land Rights
- G. Land Disputes
- H. Non-Agricultural Income, Consumption, and Assets
- I. Household Savings, Borrowing, and Shocks
- J. Food Security
- K. Self Efficacy
- L. Locating Information
- M. Empowerment
- N. Sketch Map Instructions

### A. Introduction and Consent

Greetings! My name is \_\_\_\_\_. I am from Research Solutions Africa (RSA) and is currently undertaking a survey on behalf of MSI/NORC, a contractor with the United States Agency for International Development, in conjunction with the Iringa District Land Office to learn more about villagers in this district.

We are currently visiting villages in Iringa to gain a better understanding of village land use, administration, and the local community. The answers from this questionnaire will be used to learn more about land-use and life in the village.

I will not tell anyone about your answers to these questions. Only the research team will view your responses. Although we will ask for information about this village and your experience here, we will never use personal information in our documentation and will not report sensitive village information to anyone. This survey does not mean that a project or NGO will come to this village, and your answers will not affect whether any future projects come to this village. The entire survey will take about 2 hours.

If you have any questions in the future, you can contact MSI via phone. Are you willing to proceed with the interview?

1. Yes .... >>> (**Tick category of hhd respondent and proceed as appropriate**)
2. No .... >>> (**Tick respondent category and Terminate interview**)

Category of household respondent

1. Male household head >>> **Section B**
2. Female household head >>> **Section M**
3. Head of household (*for households with only one household head: widows/widowers/single parents/single-member households, etc.*) >>> **Section B**

## ADMINISTRATIVE INFORMATION

<b>Household number</b>			
<b>Date of interview:</b>	<b>DD</b>	<b>MM</b>	<b>YY</b>
<b>Time of interview:</b> (24 hour clock)	<b>Start</b>	<b>HH</b>	<b>Stop</b>
	<b>MM</b>		<b>HH</b> <b>MM</b>
<b>Name of interviewer:</b>			
<b>Code of interviewer</b>			
<b>Place of interview:</b>			
<b>Ward</b>			
<b>Village</b>			
<b>Point of interview</b>	<ol style="list-style-type: none"> <li>1. Respondent's residence</li> <li>2. In one of the household's parcel of land</li> <li>3. Away from respondent's place of residence and/or parcel of land</li> </ol>		
<b>GPS Coordinates</b>			
<b>Number of visits (max. of 3)</b>			
<b>Reason for call back</b>	<b>Number of visits</b>		
	<b>1</b>	<b>2</b>	<b>3</b>
Refused to be interviewed		1	1
Target respondent not at home		2	2
Target respondent requested for a call back			
No one in the household		3	3
Respondent not able to be interviewed due to medical reasons (very sick, dumb, etc.)		4	4
No adult member in the household		5	5
Language barrier		6	6
Not applicable		99	99
<b>Outcome of final visit</b>	<b>Successful</b>	<b>Incomplete</b>	<b>Replaced</b>

<b>Field quality control checks (sign as appropriate)</b>		
<b>Activity</b>	<b>Activity undertaken by</b>	
	<b>Interviewer</b>	<b>Supervisor</b>
<b>Reviewed</b>		
<b>Accompanied</b>		
<b>Back checked</b>		
<b>Called back</b>		

### B. Household Roster and Information

I would like to start this interview with a few questions about each of your household members.

	Name	Question	Response options/units	Notes/instructions
		Thank you for agreeing to take this survey. To start, I would like to ask you a few questions about your household and your role as the head of the household.		
B1	Hou_role	Are you the household head?	1 Yes 2 No	
B1.1	Hou_gender	What is the respondent's gender?	1 Male 2 Female	<ul style="list-style-type: none"> <li>• If hou_role = 1 &amp; hou_gender = 1 continue to hou_num_n and end survey at</li> <li>• If hou_role = 1 &amp; hou_gender = 2 continue through end of survey (all modules)</li> <li>• If hou_role = 2 &amp; hou_gender = 2 go to Module L (Wives Survey)</li> <li>• If hou_role = 2 &amp; hou_gender = 1, ask for household head, if the household head is not available continue to hou_num_n.</li> </ul>
B1.2	hou_num_n	How many members constitute this household?	Enter number of household members based on hou_nme.	
B1.3	hou_nme	Can you tell me the name of all the members of this household?		RECORD THE HOUSEHOLD MEMBERS BEGINNING WITH THE HOUSEHOLD HEAD, FOLLOWED BY THE SPOUSE AND THEN THE CHILDREN STARTING WITH OLDEST FIRST AND CONCLUDING WITH THE YOUNGEST.
B2	hou_tride_n	What tribe or tribes is each member of this household from? MARK ALL THAT APPLY (multiple answer)	<ol style="list-style-type: none"> <li>1. Hehe</li> <li>2. Bena</li> <li>3. Kinga</li> <li>4. Pangwa</li> </ol>	Repeat questions indexed _n for each of n household members

			5. Maasai 990.Other(specify)	
B3	hou_gender_n	What is [NAME]'s gender?	1= Male, 0= Female	
B4	hou_rel_n	How is [NAME] related to the head of the household/respondent?	1. HEAD 2. SPOUSE 3. SON/DAUGHTER 4. STEP SON / DAUGHTER 5. SISTER/BROTHER 6. GRANDCHILD 7. FATHER/MOTHER 8. OTHER RELATIVE (SPECIFY) 9. LIVE-IN SERVANT 990.OTHER NON-RELATIVES (SPECIFY)	
B5	hou_age_n	How old is [NAME] in completed years?		Enter age. Enter 996 for Don't Know.
B6	hou_edu_n	What is the highest grade level that [NAME] has completed?	PRIMARY P1.....11 P2.....12 P3.....13 P4.....14 P5.....15 P6.....16 P7.....17 FORM F1.....21 F2.....22 F3.....23 F4.....24 'O'+COURSE.25 F5.....31 F6.....32 'A'+COURSE.33 DIPLOMA...34 U1.....41 U2.....42 U3.....43 U4.....44 U5&+.....45	Skip if younger than 15
B7	hou_rdwr_n	Can [NAME] read and write a simple sentence.	1. KISWAHILI 2. ENGLISH	Skip to Hou_look_n if younger than 15

			3. KISWAHILI & ENGLISH 4. ANY OTHER LANGUAGE 5. NO 999.N/A (Younger than 15 years)	If 999 >>> Next household member OR >>> Next Section
B8		What is the marital status of [NAME]?	1. Married 2. Co-habitation 3. Divorced 4. Separated 5. Widow/er 6. Never married 990. Other (specify)	
B9	Hou_look_n	During the past 4 weeks, did [NAME] actively look for work?	1. Yes 2. No 996. Don't know	
B10	Hou_take_n	Was [NAME] available to start a job if he/she found one?	1. Yes 2. No 996. Don't know	If Hou_look_n = 1
B11	hou_fwrkwet_n	Did [NAME] work on the household farm, including fields and kitchen garden, during the past short and long rainy season?	1. Yes 2. No 996. Don't know	
B12	Hou_fwrkdry_n	Did [NAME] work on the household farm, including fields and kitchen garden, during the past dry season?	1. Yes 2. No 996. Don't know	
B13	Hou_status_n	Which of the following best describes the present situation of [NAME]?	1. Housework / housewife 2. Student 3. Retired 4. Ill, disabled 5. Not working and not looking for work 990. Other (specify __)	
B14	Hou_emptye_n	In what type of economic activity did [NAME] spend most of his/her time in the last 12 months:	1. ON OWN/FAMILY FARM OR SHAMBA 2. UNPAID FAMILY HELPER (AGRIC) 3. UNPAID FAMILY HELPER (NON-AGRIC) 4. A PAID EMPLOYEE 5. SELF EMPLOYED	

### C. Agricultural Organizations, Services and Training

	Name	Question	Response options/units	Notes/instructions
C1	org_proforg	Are you a member of a farmer association or cooperative?	<ol style="list-style-type: none"> <li>1. Yes</li> <li>2. No</li> <li>3. Don't know</li> </ol>	
C2	org_coop	Are you a member of any other kind of cooperative not related to agriculture?	<ol style="list-style-type: none"> <li>1. Yes</li> <li>2. No</li> <li>3. Don't know</li> </ol>	If 2 >>> C3
C2.1	org_coop_prd	What kind of cooperative?  SELECT ALL THAT APPLY	<ol style="list-style-type: none"> <li>1. Political party</li> <li>2. Village group (non-agric)</li> <li>3. Education group</li> <li>4. Religious group</li> <li>990. Other (specify: _____)</li> </ol>	If org_coop = yes
C3	org_srv	Did you or anyone in your household receive any agricultural extension services in the past 12 months?	<ol style="list-style-type: none"> <li>1. Yes</li> <li>2. No</li> <li>996. Don't know</li> </ol>	If 2 >>> C5
C3.1	org_prd	What kind of services were provided?	<ol style="list-style-type: none"> <li>1. Access to improved seed</li> <li>2. Fertilizer, pesticides and other chemical inputs</li> <li>3. Tractor services</li> <li>4. Marketing services</li> <li>5. Transport services</li> <li>6. The opportunity to participate in a value chain scheme</li> <li>7. Help to form or strengthen farmer groups</li> <li>8. Contract farming</li> <li>9. Post-harvest processing of ANY of crops (including drying, sorting, packaging, and/or storing)</li> <li>10. Purchasing of ANY of the crops</li> <li>11. Training on agricultural production and/or processing</li> <li>12. Training on business practices</li> <li>990. Other, SPECIFY _____</li> </ol>	If org_srv = yes

C3.2	org_used_srv	How often has anyone in your household made use of extension services in the past 12 months?	<ul style="list-style-type: none"> <li>1 3 times or more</li> <li>2 Once or twice</li> <li>3 Never</li> </ul>	
C4	org_trnd	In the past 12 months, have you or anyone in your household received any kind of community or organizational assistance related to agriculture, such as assistance from an NGO or community group?	<ul style="list-style-type: none"> <li>1. Yes</li> <li>2. No</li> <li>996. Don't know</li> </ul>	If org_trnd != 1 skip to next module If 2 OR 996 >>> Next Section
C4.1	org_what	What kind of services were provided?	<ul style="list-style-type: none"> <li>1. Free food/maize distribution</li> <li>2. Food-for-work programme or cash-for-work programme</li> <li>3. Inputs-for work programme</li> <li>4. Attended a training or workshop</li> <li>5. Had an agent visit my/our parcel(s)</li> <li>6. Read a pamphlet</li> <li>7. Other assistance (not listed above)</li> </ul>	
C4.2	org_frequ	For how many days in the past 12 months did you or anyone in your household receive these services?	Enter days	
C5	org_name	Are you aware of these organizations working in your village?  MARK ALL THAT APPLY	<ul style="list-style-type: none"> <li>1. One Acre Fund</li> <li>2. Briten</li> <li>3. Unicef</li> <li>4. Eadd</li> <li>5. Cuamm</li> <li>6. Clinton Foundation</li> <li>7. Tahea</li> <li>8. Camfed</li> <li>9. Cefa</li> <li>10. Wopata</li> <li>11. Jica</li> <li>12. TIB</li> <li>13. Concern</li> <li>14. Tunajali</li> <li>15. SNV</li> <li>16. TNRF</li> <li>17. TCD</li> <li>18. IMO</li> <li>19. Cheet</li> <li>20. Restless Development</li> <li>21. LEAT</li> <li>22. Caltas</li> </ul>	Select all that apply

### D. Land Holdings and Characteristics

	Name	Question	Response options/units		Notes/instructions
<i>Thank you for the earlier responses. I would now like to ask you a few questions about your land holdings and the parcels you farm.</i>					
D1	Lan_num	How many different parcels does the household own, rent, or use?	Enter number		
D2	Lan_name	Please give each parcel a name so we can keep track during the interview			If lan_num > 1. From here down, ask for each parcel.
D2.1	Lan_own	Which parcels does the household own?	Enter PARCEL ID		This should be left blank if no parcels are rented.
D2.2	Lan_own	Which parcels does the household rent?	Enter PARCEL ID		This should be left blank if no parcels are rented.
D3	Lan_boun	Is [PARCEL ID] inside the village boundary?	1 = Yes 2 = No		
D4	Lan_cent	Is [PARCEL ID] near the village center	1 = Yes 2 = No		
D5	Lan_home	Is [PARCEL ID] near your homestead your homestead?	1 = Yes 2 = No		
D6	Lan_size_i	What is the size of [PARCEL ID]?	Quantity	Unit	Record local units/quantity.
D7	Lan_dist_i	How long does it take to get from your house to [PARCEL ID] on foot?			Record in minutes.
D8	Land_diffcom_i	Is [PARCEL ID] in a different village from the one you live in?	1. Yes 2. No 3. Don't know		
D9	Land_diffcomvi_i	What is the name of the village where [PARCEL ID] is?	Enter village name		If Land_diffcom_i = 1
D10	Lan_right_i	What is the ownership status of [PARCEL ID]?	1. Owned <b>by the household</b> 2. Used <b>by the household</b> free of charge 3. Rented <b>by the household</b> 4. Rented <b>by the household together with other people</b> 5. Owned <b>by the household together with other people</b>		If 3 OR 4 >>> D13
D11	Lan_othrent_i	Does someone else rent [PARCEL ID] from you?	1. Yes 2. No		
D12	Lan_doc_i	Do you or your household have any kind of documentation of your rights to any of your parcels?	1. Yes 2. No 996. Don't know		If Lan_doc_i != 2 OR 996 skip to Lan_use_i (D13)
D12.1	Lan_docparcel_i	Which parcels?	Record Parcel IDs		

D12.2	Lan_typedoc_i	What kind of documentation? SELECT ALL THAT APPLY.	<ol style="list-style-type: none"> <li>1. GRANTED RIGHT OF OCCUPANCY</li> <li>2. CERTIFICATE OF CUSTOMARY RIGHT OF OCCUPANCY (CCRO)</li> <li>3. INHERITANCE LETTER</li> <li>4. OTHER GOVERNMENT DOCUMENT</li> <li>5. OTHER DOCUMENT OR LETTER (NON-GOVERNMENT/UNOFFICIAL)</li> </ol>	
D12.3	Lan_docobtain_i	What year did you obtain the documentation for [PARCEL ID]?	Year	If land_doc_i=yes next question. 996 if unsure/don't know.
D12.4	Lan_docobtainmon_i	What month did you obtain the documentation for [PARCEL ID]?	Month	Enter 996 if unsure/ don't know
D12.5	Lan_docnum_i	How many people in household have their names listed on the documentation you have for [PARCEL ID]?		Enter number; If don't know, enter 996
D12.6	Lan_docwho_i	Who in the household is listed as the primary land user on the documentation for [PARCEL ID]?	<ol style="list-style-type: none"> <li>1. Self/Husband</li> <li>2. Wife/Spouse</li> <li>3. Jointly listed (husband/wife)</li> <li>4. Other</li> </ol> 996.Don't know	Refer to HH roster
D12.7	Lan_docphys_i	Do you have a personal copy of the document?	<ol style="list-style-type: none"> <li>1 Yes</li> <li>2 No</li> </ol>	If lan_typedoc_i == 2 (ccro) If 2 >>> D12.9
D12.8	Lan_docloc_i	Where do you store a copy of the document?	<ol style="list-style-type: none"> <li>1. In homestead</li> <li>2. With a nearby family member</li> <li>3. At the village center</li> <li>4. At the DLO/With the government</li> </ol>	If lan_typedoc_i == 2 (ccro)
D12.9	Lan_docuse_i	Have you ever had to reference the document?	<ol style="list-style-type: none"> <li>1 Yes</li> <li>2 No</li> </ol>	If lan_typedoc_i == 2 (ccro) If 2 >>> D13
D12.10	Lan_docusetype_i	Why did you reference the document?	<ol style="list-style-type: none"> <li>1. To resolve a dispute</li> <li>2. To obtain a loan</li> <li>3. To plan inheritance</li> <li>4. To prove ownership (not dispute related)</li> <li>5. As part of a rental agreement</li> </ol> 990.Other	Lan_docuse_i == yes

D13	Lan_use_i	During last year's agricultural seasons, did your household farm [PARCEL ID], leave it fallow, or use it for pasture or some other non-agricultural use?	1 Farmed this parcel 2 Left this parcel fallow 3 Used this parcel as pasture/other non-agricultural use	
D14	Lan_mth_i	What was the method by which [PARCEL ID] was acquired/claimed by your household?	1) Bought it 2) Inherited 3) Started renting/sharecropping 4) Cleared it 5) Distributed by village 6) Received as gift 7) Occupied	Context
D15	Lan_yr_i	What year did your household acquire [PARCEL ID]?		Enter 996 if don't know
D16	Lan_dcd_i	Who primarily decides how to use [PARCEL ID]?	1=Self 2=Spouse 3=Both self and spouse together 4=Other male household member 5=Other female household member 990=Other, specify	
D17	Lan_inherp_i	Do you have an inheritance plan for your parcels?	1 Yes 2 No	If no skip to lan_svy_i
D17.1	Lan_inhe_who_i	Have you discussed this plan with anyone?	1 Yes 2 No	If not skip to lan_svy_i
D17.2	Lan_inhe_name	Who have you discussed this with?	1 Wife/Spouse 2 Children 3 Other Family 4 Village leaders 5 Other	
D18	Lan_svy_i	Has [PARCEL ID] ever been mapped by surveyor?	1 Yes 2 No 996 Don't know	If 2 OR 996 >>> D21
D19	Lan_yrsvy_i	What year was [PARCEL ID] mapped by surveyor?	Year	If lan_svy_i = yes 99 if unsure/don't know. Skip to next section unless land_use_i = 1 Enter 996 if don't know
D20	Lan_mnsvy_i	What month was [PARCEL ID] mapped by surveyor?	Month	Enter 996 if don't know
D21	Lan_top_i	What is the topography of [PARCEL ID]?	1 Plain 2 Valley 3 Mountain top	

			4 Mountain side 5 Hill 6 Other	
D22	Lan_soiltyp_i	What is the primary soil type of [PARCEL ID]?	(1)Clay (2)Sandy (3)Loam (4)Other (996)Don't know	
D23	Lan_slp_i	Overall, what is the slope of [PARCEL ID]?	(1) Flat bottom (2) Flat top (3) Slightly sloped (4) Very Steep	
D24	Lan_irr_i	Is [PARCEL ID] irrigated?	1 Yes 2 No	
D25	Lan_restyn_i	Have you ever left [PARCEL ID] fallow?	1 Yes 2 No	If 2, skip to lan_imp_i
D25.1	Lan_rest_i	What was the most recent year in which [PARCEL ID] was left fallow?		Enter 996 if don't know;
D25.2	Lan_restperct_i	What portion of [PARCEL ID] was left fallow?	Enter percentage	Answer only if lan_restyn_i = 1
D26	Lan_imp_i	For each of the following items I am going to ask about, I want to know if you have made any of the following improvements to this parcel, either in the past year or before that?		Need to tailor these may need to add more investments
D26.1	Lan_imp_well_i	<ul style="list-style-type: none"> <li>• Digging wells or pump irrigation</li> </ul>	1 In the past year 2 Before the past year 3 Both in the past year and before 4 No	
D26.2	Lan_imp_building_i	<ul style="list-style-type: none"> <li>• Erecting buildings</li> </ul>	1 In the past year 2 Before the past year 3 Both in the past year and before 4 No	
D26.3	Lan_imp_fence_i	Erecting fencing	1 In the past year 2 Before the past year 3 Both in the past year and before 4 No	
D26.4	Lan_imp_terr_i	<ul style="list-style-type: none"> <li>• Terracing</li> </ul>	1 In the past year 2 Before the past year 3 Both in the past year and before 4 No	
D26.5	Lan_imp_soil_i	<ul style="list-style-type: none"> <li>• Soil conservation</li> </ul>	1 In the past year 2 Before the past year 3 Both in the past year and before 4 No	

## E. Agricultural Production

### E.1 Annual Crops

	Name	Question	Response options/units	Notes/instructions
<i>Now, I am going to ask about some of the annual crops that you grow here.</i>				
E1	Ann_wet_i	Which parcels did anyone in your household cultivate during the past rainy season?	[SELECT FROM LIST OF PARCELS COLLECTED ABOVE SECTION]	996 for OTHER and specify 000 for none
E1.1	Ann_dry_i	Which parcels did anyone in your household cultivate during the past dry season?	[SELECT FROM LIST OF PARCELS COLLECTED FROM ABOVE SECTION]	996 for OTHER (specify) 000 for none
E1.2	Ann_difcrop_i	How many different crops did you grow on [PLOT ID]?	Enter number	
E1.3	Ann_croprain_i	What crops were grown on [PLOT ID] during the past rainy season?		See crop codes at the end of this document.
E1.4	Ann_cropdry_i	What crops were grown on [PLOT ID] during last year's dry season?		See crop codes
E1.5	Ann_perc_i	What percentage of [PLOT ID] is used to grow [CROP]?		
E1.6	Ann_soil_i	What did you use to till the soil on [PLOT ID]? (Select all that apply)	1 Hand hoe 2 Animal-drawn plows 3 Tractors or other machinery  990 OTHER, specify	
E1.7	Ann_seed_i	What was the name of the main seed variety for this [CROP] on [PLOT ID]?		Enter name
E1.8	Ann_varseed_i	How many varieties of seed for this [CROP] were planted on [PLOT ID]?		Enter number
E1.9	Ann_seed_quant_i	What was the total amount of seeds used on [PLOT ID]?	Enter number	
E1.9.1	Ann_seedamo_i	What units were used for ann_seed_quant_i ?	1. KG 2. 1 LITER CUP 3. 10 LITER BUCKET 4. 20 LITER BUCKET 5. SMALL CUP (handful) 6. OTHER, SPECIFY	
E1.10	Ann_seedcert_i	Did you receive a voucher/certificate for any of this [SEED]?		
E1.11	Ann_numseed_i	What was the total amount paid for seeds (Tsh)?		
E1.12	Ann_intype_i	What type of input did you utilize during [season] on [PLOT ID]  SELECT MULTIPLE	1. Fertilizer 2. Pesticide 3. Herbicide 4. Fungicide	

	Name	Question	Response options/units	Notes/instructions
			5. Other 6. None	
EI.13	Ann_fert_i	What type of fertilizer did you use on [PLOT ID]?	1. Di-ammoium Phosphate (DAP) 2. UREA 3. Triple Super Phosphate (TSP) 4. Calcium Ammonium Nitrate (CAN) 5. Sulphate of Ammonium (SA) 6. Nitrogen Phosphate Potassium (NPK) 7. Minjingu Rock Phosphate (MRP) 8. Organic Fertilizer 9. Other 10. 999 N/A	Answer if EI.122 ==1 This should only show up if ann_intype_i includes Fertilizer
EI.14	Ann_inputkg_i	In total, what quantity of [INPUT] was used for your crops during [season] on all parcels?	Quantity Units: 1. KG 2. 1 LITER CUP 3. 10 LITER BUCKET 4. 20 LITER BUCKET 5. SMALL CUP (handful) 6. OTHER, SPECIFY	For overall plots.
EI.15	Ann_inputcost_i	In total, how much did you pay for the [INPUT] during [season]?	TZ shillings	
EI.16	Ann_rent_i	In the [season] did you rent farm equipment (tractors, combine, plough, bullock etc)?	1 Yes 2 No	If 2 >>> EI.18
EI.17	Ann_rentpay_i	In total, how much did you pay for the rented farm equipment during [season]?	TZ shillings	
EI.18	Ann_irr_i	In [season], did your household spend money on irrigation (including electricity, diesel, pumpset rental, maintenance, repair of irrigation channels etc.) for all/any crops?	1 Yes 2 No	If 2 >>> EI.20

	Name	Question	Response options/units	Notes/instructions
EI.19	Ann_irrcost_i	In total, how much did you spend on irrigation during [season]?	TZ shillings	
EI.20	Ann_labyn_i	Did you use hired labor during [season]?	1 Yes 2 No	
EI.20.1	Ann_labor_i	In total, how much did you spend on hired farm labor during [season]?	TZ shillings	
EI.21	Ann_laborday_i	Beyond the household labor and other hired labor already discussed, approximately how many days of shared/cooperative/community labor were used in total for all crops during [season]?		Days would be full working days, i.e. during day light hours.
EI.22	Ann_harv_i	During [season] how much [CROP] did your household harvest in total across all plots of land?	Record _quantity :	
EI.22.1	Ann_harv_i	What units were used to record harvest for ann_harv_i?	1. KG 2. Large Bag (100 KG) 3. Small Bag (50 KG) 4. 20 Liter Bucket 5. 10 Liter Bucket 6. Crate 7. Other (Specify)	if KG used, skip to Ann_cons_i
EI.23	Ann_harvkg_i	During [season] how much [CROP] in KG did your household harvest in total across all plots of land?	Record in KG if Ann_harv_i not reported in KG	
			1.   2.	
EI.25	Ann_consquant_i	What quantity of the [CROP] harvested during [season] has been consumed by members of your household?	Enter quantity	
EI.25.1	Ann_consunit_i	What units were used to record ann_conskg_i	1. KG 2. Large Bag (100 KG) 3. Small Bag (50 KG) 4. 20 Liter Bucket 5. 10 Liter Bucket 6. Crate 7. Other (Specify)	
EI.26	Ann_soldquant_i	What quantity of [CROP] harvested during [season] was sold at the marketplace (to any outlet)?	Enter quantity	
EI.26.1	Ann_sold_i	What units were used to record ann_soldquant_i?	1. KG 2. Large Bag (100 KG) 3. Small Bag (50 KG) 4. 20 Liter Bucket 5. 10 Liter Bucket 6. Crate	

	Name	Question	Response options/units	Notes/instructions
			7. Cart 8. Other (Specify)	
E1.27	Ann_soldkg_i	What quantity of the [CROP] harvested during [season] was sold at the marketplace (to any outlet) in KG?	Record in KG	
E1.28	Ann_earn_i	How much did you receive in total for [CROP] sold at the marketplace (to an agribusiness center or any other outlet)?	TZ Shillings	
E1.29	Ann_earn_all	How much did you receive in total from annual crop farm earnings in the last 12 months?	TZ shillings	

## E.2 Perennial Crops

	Name	Question	Response options/units	Notes/instructions
		Thank you. Now, I want to ask you about perennial crops that you grow.		
E2.1	Pere_crop_num	How many fruit trees and permanent crops do you grow on [PLOT ID]?	Enter number	
E2.1.1	Pere_crops	Please tell me all of the fruit trees and permanent crops that you grow on [PLOT ID]		Ask respondent to select from list of fruit and perennial crops. These questions are asked for each fruit and permanent crop.
E2.1.2	Pere_cropcount	How many of these plants/trees are on [PLOT ID]?		Type=Fruit or Permanent Crop
E2.1.3	Pere_yearplant	When were most of these [CROP] planted on [PLOT ID]?	Month/Year	
E2.1.4	Pere_plants	How many trees/plants were planted on [PLOT ID] during the last 12 months?	#	
E2.6	Pere_trees	In the past 12 months, how many non-fruit trees did you plant on any of your plots?	#	
E2.6.1	Pere_treeuse	What do you plan to use these trees for?	1. Wood 2. Timber/Lumber 3. Erosion control 4. Border demarcation 990.Other	If Pere_trees is not 0, if Other record response
E2.7	Pere_intercrop	Was cultivation intercropped during the past long rainy season?	1 Yes 2 No	Skip to pere_prod_i if No
E2.7.1	Pere_interseason	What was the reason for intercropping?	1 More fertile for the soil 2 Substitute if either crop fails	

	Name	Question	Response options/units	Notes/instructions
			3 To get the most out of my land 4 Other	
E2.8	Pere_prod_i	What was the last harvest for the [CROP]?	Month/year	
E2.9	Pere_dec_i	Who in the household made the decisions concerning the use of [CROP] harvested in the past 12 months?	Select from list	
E2.10	Pere_amount_i	What was the total amount of [CROP] harvested in the past 12 months?	Enter quantity	
E2.101	Pere_amountunit_i	What units were used to record the amount in pere_amount_i?	1. KG 2. Large Bag (100 KG) 3. Small Bag (50 KG) 4. 20 Liter Bucket 5. 10 Liter Bucket 6. Crate 7. Other (Specify)	
E2.11	Pere_sell_i	Did you sell any of the [CROP] collected?	1 Yes 2 No	If 2 >>> Next Section.
E2.11.1	Pere_quant_i	What was the total quantity sold?	Enter quantity	
E2.11.12	Pere_quantunit_i	What units were used to record the amount in pere_quant_i	1. KG 2. Large Bag (100 KG) 3. Small Bag (50 KG) 4. 20 Liter Bucket 5. 10 Liter Bucket 6. Crate 990.Other (Specify)	
E2.11.2	Pere_value_i	What was the total value of [CROP] sold?	TZ Shillings	
E2.11.3	Pere_nego_i	Who in your household was responsible for negotiating the sale of the [CROP]?	Answer type/code	
E2.11.4	Pere_earnuse_i	Who in your household decided what to do with these earnings?	Answer type/code	
E2.11.5	Pere_locsell_i	Where did you sell most of the [CROP]?	Select all that apply: 1 purchased wholesale by a middleman 2 purchased wholesale by a processor 3 sold in the market directly 4 sold to a neighbor 5 Other	

	Name	Question	Response options/units	Notes/instructions
E2.11.6	Pere_inc_i	How much did you receive in total from perennial and fruit crop farm earnings in the last 12 months?	TZ shillings	

Crops Codes

<p><b>Cereals/tubers/roots:</b></p> <p>Maize.....11  Paddy.....12  Sorghum.....13  Bulrush Millet...14  Finger Millet...15  Wheat.....16  Barley.....17  Cassava.....21  Sweet Potatoes...22  Irish potatoes...23  Yams.....24  Cocoyams.....25  Onions.....26  Ginger.....27</p> <p><b>Legumes, Oil &amp; fruit:</b></p> <p>Beans.....31  Cowpeas.....32  Green gram.....33  Chick peas.....35  Bambara nuts....36  Field peas.....37  Sunflower.....41  Sesame.....42  Groundnut.....43  Soyabeans.....47  Caster seed.....48</p>	<p><b>Fruits:</b></p> <p>Passion Fruit...70  Banana.....71  Avocado.....72  Mango.....73  Papaw.....74  Orange.....76  Grapefruit.....77  Grapes.....78  Mandarin.....79  Guava.....80  Plums.....81  Apples.....82  Pears.....83  Peaches.....84  Lime.....851  Lemon.....852  Pomelo.....68  Jack fruit.....69  Durian.....97  Bilimbi.....98  Rambutan.....99  Bread fruit.....67  Malay apple.....38  Star fruit.....39  Custard Apple...200  God Fruit.....201  Mitobo.....202  Plum.....203  Peaches.....204  Pomegranate.....205  Date.....210  Tungamaa.....211  Vanilla.....212</p>	<p><b>Vegetables:</b></p> <p>Cabbage.....86  Tomatoes.....87  Spinach.....88  Carrot.....89  Chilies.....90  Amaranths.....91  Pumpkins.....92  Cucumber.....93  Egg Plant.....94  Water Mellon....95  Cauliflower.....96  Okra.....100  Fiwi.....101</p>	<p><b>Cash Crops:</b></p> <p>Cotton.....50  Tobacco.....51  Pyrethrum.....52  Jute.....62  Seaweed.....19</p>	<p><b>Permanent Cash crops:</b></p> <p>Sisal.....53  Coffee.....54  Tea.....55  Cocoa.....56  Rubber.....57  Wattle.....58  Kapok.....59  sugar Cane.....60  Cardamom .....61  Tamarind.....63  Cinnamon.....64  Nutmeg.....65  Clove.....66  Black Pepper....18  Pigeon pea.....34  Cassava.....21  Pineapple.....75  Palm Oil.....44  Coconut.....45  Cashew nut.....46  Green Tomato....300  Monkeybread....301  Bamboo.....302  Firewood/fodder..303  Timber.....304  Medicinal plant..305  "Fence tree" ....306  other.....990</p>
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## F. Perceptions of land rights

	Name	Question	Response options/units	Notes/instructions
		Ok. I would like to ask you about some issues around land in this village. I only want to talk about parcels here (in this village), not things you may have heard in nearby villages (or plots you may have elsewhere).		Leave out mention of parcels in other villages if it is not relevant.
F1	Per_takepos	In the next five years, do you think it's possible that someone could try to take one of your parcels from you without your permission?	1 Yes 2 No 996 Don't know	If 2 OR 996 >>> F6
F2	Per_expro	How likely do think it is that someone would try to take one of your parcels from you in the next 5 years?	1 Possible but unlikely 2 Somewhat likely 3 Very likely/it is happening now	If per_takepos = yes
F3	Per_parcel_i	Which parcels do you feel are at risk?	Run through list of parcels	If per_expro != 1
F4	Per_source_i	Who do you think would try to take your parcels?	1. Government 2. Foreign investor 3. Tanzanian investor (from outside the village) 4. Someone inside the village 5. Absentee owner/land claimants 6. Extended family 7. Other	If per_expro != 1
F5	Per_reason	Which if any of the following are reasons why you think this could happen? Please rank from the most important reason to the least important reason 1. Ongoing or past disputes or expropriation 2. Lack of documents 3. Length of agreement (if lease agreement for example) 4. Problems experienced by others in the community	Enter rank order. If one or more options are not relevant, ask for top rank and then determine which seem the least irrelevant of the irrelevant options and work from there.	If per_takepos = yes
F6	Per_changepos	Compared to one year ago, do you think the possibility that someone could try to take one of your parcels has increased, decreased, or stayed the same?	1 Increased 2 Decreased 3 Stayed the same	

F7	Per_comworry	In general, how many people in your community are worried that someone might try to take their land against their will?	1 None or very few 2 Some are worried but most are not 3 Most are worried but not all 4 All or nearly all are worried	
F8	Per_borpos	Do you think it's possible that you could have a dispute over the borders of one of your parcels with a neighbor in the next 5 years?	1 Yes 2 No	If 2 >>> F10
F9	Per_disputeprob	How likely do think it is that you could have a dispute over the borders of one of your parcels with a neighbor in the next 5 years?	1 Possible, but unlikely 2 Somewhat likely 3 Very likely/it is happening now	If per_borpos = yes
F10	Per_reasonwhy	Which if any of the following are reasons why you don't think this is possible? <ul style="list-style-type: none"> <li>• My family has owned/used the parcel for a long time</li> <li>• Lack of problems in the past</li> <li>• Land has been surveyed</li> <li>• HH has documentation of rights</li> <li>• Village Council/Elders/Leaders can easily address potential disputes</li> </ul>	Select all that apply.	If per_takepos = no
F11	Per_dispute_change	Compared to one year ago, do you think the possibility that you could have a boundary dispute with your neighbors has increased, decreased, or stayed the same?	1 Increased 2 Decreased 3 Stayed the same	
F12	Per_dispute_type_i	Over the past 5 years, how big of a problem have each of the following types of disputes about land been in your community? <ul style="list-style-type: none"> <li>• Family disputes</li> <li>• Disputes with investors</li> <li>• Disputes with others (non-family) claiming land</li> <li>• Boundary disputes between neighbors</li> <li>• Disputes about land rentals/sharecropping agreements</li> <li>• Disputes over grazing</li> </ul>	1 Not a problem at all 2 A small problem 3 A big problem	Ask for each kind of dispute
F13	Per_prob_change	Over the past year, would you say problems with land disputes have improved, stayed the same, or gotten worse?	1 Improved 2 Stayed the same 3 Gotten worse	
F14	Per_future	In the next 12 months, do you expect problems with land disputes will improve, stay the same, or get worse?	1 Improved 2 Stayed the same 3 Gotten worse	
F15	Per_coma	Do you use communal pasture land?	1 Yes	If 2 >>> F17

			2 No	
F16	Per_coml	Do you think it is possible that you will lose your existing rights on communal pasture land in the next 12 months?	1 Yes 2 No 996 Don't know	Anser if per_coma=Yes If 2 OR 996 >>> F17
F16.1	Per_coml_why	How likely do you think it is that you would lose your existing rights on communal pasture land in the next 12 months	1 Highly likely 2 Somewhat likely 3 Possible but unlikely	If per_coml = Yes
F16.2	Per_comr	Why do you think you will lose your existing rights on communal pasture land in the future?	1= Local farmers encroaching onto communal land or access routes. 2= Village will decide to allocate the land for other uses. 3= The government will allocate the communal land to an investor 990= Other (please specify)	Answer if per_coml=Yes
F17	Per_fallow	How much of a risk is there that someone will take over one of your plots if you leave it fallow?	1 Very high risk 2 Somewhat risky 3 No risk 4 Unsure	
F18	Per_inheritforce	In general, do you feel that your plans for land inheritance will be enforced?	1 Yes 2 No 996 Don't know/unsure	
F19	Per_landlaw	How well do you understand the official land laws?	1 Very well 2 Familiar but don't know the details 3 Familiar with some rules but don't know if they are official law 4 Unsure	
F20	Per_CCRO	Have you heard of CCROs?	1 Yes 2 No	If 2 >>>Per_LTA. DO NOT PROMPT IF RESPONDENT HAS NOT HEARD OF CCROs.
F20.1	Per_payCCRO	In general, how much (if anything) would you be willing to pay to have one of your parcels surveyed and to receive a CCRO?		
F21	Per_LTA	Have you heard of LTA?	1 Yes 2 No	If 2 >>> Next section. DO NOT PROMPT IF

				RESPONDENT HAS NOT HEAR OF LTA!
F21.1	Per_LTAvisit	Did LTA visit your parcel in the past 2 years?	1 Yes 2 No	If 2 >>> Next section
F21.2	Per_LTArec	Which of the following did you receive through LTA?  MARK ALL THAT APPLY	<ul style="list-style-type: none"> <li>• Land was surveyed/ mapped</li> <li>• CCRO</li> <li>• Notarized title</li> <li>• None of the above</li> </ul>	If Per_LTAvisit= yes
F21.3	Per_LTAinfo	Before the LTA process began, did you receive any information about what was going to happen?	1 Yes 2 No	If Per_LTAvisit = yes
F21.4	Per_LTAinfotype	What kind of information? Select all that apply	<ul style="list-style-type: none"> <li>• community meetings with VEO</li> <li>• community meetings with LTA</li> <li>• individually consulted by VEO</li> <li>• Individually consulted by LTA</li> <li>• Other</li> </ul>	Based on Per_LTArec
F21.5	Per_LTAsuff	Did you feel this information was sufficient for you to understand what was happening and how you could obtain your CCRO?	1 Yes 2 No	
F21.6	Per_LTAmap	Were you present when your parcels were being mapped?	1 Yes 2 No	If per_LTAvisit = yes If 2 >>> F21.8

F21.7	Per_LTAmpres	Would you have like to have been present when your parcels were being mapped?	1 Yes 1. 2 No	If Per_LTAprob = yes
F21.8	Per_LTAverify	During the verification process, did you feel you were adequately informed about who was claiming rights to what parcel?	1 Yes 2 No	If per_LTArec = CCRO
F21.9	Per_LTAverifypeople	During the verification process, do you think there were there other people in the village who felt that they were not adequately informed about who was claiming what parcel?	1 Yes 2 No	If Per_LTA = yes
F21.10	Per_LTAtime	When did LTA visit your parcel?	Month/Year	
F21.11	Per_LTAmap	When did [Per_LTArec response] take place?	• Month/Year	If per_docyben = yes

**G. Land disputes**

	Name	Question	Response options/units	Notes/instructions
<b><i>This next line of questioning addresses disputes around land in the village. As a reminder, we are not going to share your responses with anyone else in the village or to anyone in the government. Your responses will not affect whether this village receives services or not. We just want to learn more about disputes here.</i></b>				
G1	Dis_dis	In the past year, has anyone in your household been involved in any dispute or argument about land- for example, about who owns or has rights to a parcel, boundaries of parcels, or inheritance of land?	1 Yes 2 No	If 2 >>> Next section
G1.1	Dis_disnum	How many disputes?	#	
G1.2	Dis_mem_j	Which household member had [DISPUTE ID]? SELECT ALL RELEVANT HH MEMBERS.	All hh members > 15, include "the whole household" as an option	Repeat questions indexed _j for each of j disputes
G1.3	Dis_own_j	Does the household currently use the parcel over which [DISPUTE ID] occurred?	1 Yes 2 No	
G1.4	Dis_nme_j	What is the name of the parcel on which [DISPUTE ID] occurred? SELECT ALL THAT APPLY.	Parcel names from section D	If yes to previous
G1.5	Dis_type_j	What was [DISPUTE ID] related to? Select all that apply.	1 Land that the household owned or was using 2 The household trying to acquire new land 3 Land rented from the household 4 Land rented by the household 5 Inheritance 6 Grazing 7 Other	If 1 >>> G1.6 2 >>> G1.7 3 >>> G1.8 4 >>> G1.9 5 >>> G1.10 6 >>> G1.11
G1.6	Dis_desc1_j	Which of the following best describes [DISPUTE ID]?	1 Someone who lives in the area tried to take the household's land 2 Someone from outside the area tried to take the household's land 3 Boundary dispute with neighbor 4 Government tried to take the land or stop the household from using it	If dis_type_j = 1
G1.7	Dis_desc2_j	Which of the following best describes [DISPUTE ID]?	1 The household bought/claimed/requested some new land, but someone else claimed to be the owner 2 The household did not buy the land but wanted land that someone else was using	If dis_type_j = 2

			3 None of the above	
G1.8	Dis_desc3_j	Which of the following best describes [DISPUTE ID]?	1 Payment of rent/crops 2 Length of rental agreement 3 Renter tried to claim ownership 4 Other	If dis_type_j = 3
G1.9	Dis_desc4_j	Which of the following best describes [DISPUTE ID]?	1 Payment of rent/crops 2 Length of rental agreement 3 Disagreement over ownership 4 Other	If dis_type_j = 4
G1.10	Dis_desc5_j	Which of the following best describes [DISPUTE ID]?	1 Disagreement with brothers/sisters over parents' land 2 Widow/widower whose land is being claimed by spouse's relatives 3 Other	If dis_type_j = 5 Need to tailor this one
G1.11	Dis_desc6_j	Which of the following best describes [DISPUTE ID]?	1 Disagreement with pastoralists over grazing on land 2 Disagreement with non-pastoralists from the village over grazing on land 3 Disagreement with non-pastoralists from outside the village over grazing on land 3 Other	If dis_type_i=6
G2	Dis_desc7_i	Describe [DISPUTE ID]	Write response	If dis_type_i= 7
G3	Dis_yr_j	In what year did [DISPUTE ID] begin?		
G4		How long did [DISPUTE ID] last?	Months	
G5	Dis_serious_j	Overall, how serious was [DISPUTE ID]?	1 Very serious 2 Somewhat serious 3 Not serious	Guidance: "serious" here means that it disrupted or altered normal life activities.
G6	Dis_mny_j	Did you lose money because of [DISPUTE ID]?	1 Yes, a little (less than TZS 10,000) 2 Yes, a lot (more than TZS 10,000) 3 No	
G7	Dis_safe_j	Did [DISPUTE ID] make you worried about your safety?	1 Yes, a lot 2 Yes, a little 3 No	
G8	Dis_resolved_j	Was [DISPUTE ID] resolved?	1 Yes 2 No	If 2 >>> G9

G8.1	Dis_who_resolved_j	Who resolved [DISPUTE ID]?	1 We resolved it amongst ourselves 2 Others in the community 3 The Village Council 4 District Courts 5 District Officials 6 Village land use committee 7 Ward land use committee 8 Other	If yes to dis_resolved_j Need to tailor
G8.2	Dis_satis_j	How satisfied were you with how [DISPUTE ID] was resolved?	1 Very satisfied 2 Somewhat satisfied 3 Not satisfied	If yes to dis_resolved_j
G9		How likely is it that you will have another dispute like [DISPUTE ID]?	1 Very likely 2 Somewhat likely 3 Not likely 4 Unsure	

#### H. Non-Agricultural Income, Consumption, and Assets

	Name	Question	Response options/units	Notes/instructions
H1	Inc_own	Does your household currently own any of the following items in good working condition: [READ EACH OPTION OUT LOUD AND MARK IF ANSWER "YES" or 'NO']		
H1.1	Inc_own_radio	<ul style="list-style-type: none"> <li>Radio or Radio Cassette</li> </ul>	1 Yes 2 No	
H1.2	Inc_own_mobile	<ul style="list-style-type: none"> <li>Telephone(mobile)</li> </ul>	1 Yes 2 No	
H1.3	Inc_own_sewm	<ul style="list-style-type: none"> <li>Sewing Machine</li> </ul>	1 Yes 2 No	
H1.4	Inc_own_tv	<ul style="list-style-type: none"> <li>Television</li> </ul>	1 Yes 2 No	
H1.5	Inc_own_dvd	<ul style="list-style-type: none"> <li>Video / DVD</li> </ul>	1 Yes 2 No	
H1.6	Inc_own_lanterns	<ul style="list-style-type: none"> <li>Lanterns</li> </ul>	1 Yes 2 No	
H1.7	Inc_own_otherstove	<ul style="list-style-type: none"> <li>Stove</li> </ul>	1 Yes 2 No	
H1.8	Inc_own_bicycle	<ul style="list-style-type: none"> <li>Bicycle</li> </ul>	1 Yes 2 No	
H1.9	Inc_own_watches	<ul style="list-style-type: none"> <li>Watches</li> </ul>	1 Yes 2 No	
H1.10	Inc_own_mnets	<ul style="list-style-type: none"> <li>Mosquito net</li> </ul>	1 Yes 2 No	
H1.11	Inc_own_iron	<ul style="list-style-type: none"> <li>Iron (Charcoal or electric)</li> </ul>	1 Yes 2 No	

HI.12	Inc_own_fanair	<ul style="list-style-type: none"> <li>Fan/Air conditioner</li> </ul>	1 Yes 2 No	
HI.13	Inc_own_fields	<ul style="list-style-type: none"> <li>Fields/Land</li> </ul>	1 Yes 2 No	
HI.14	Inc_own_solar	<ul style="list-style-type: none"> <li>Solar panel</li> </ul>	1 Yes 2 No	
HI.15	Inc_own_house	<ul style="list-style-type: none"> <li>Houses/housing addition</li> </ul>	1 Yes 2 No	
HI.16	Inc_own_poultry	<ul style="list-style-type: none"> <li>Poultry</li> </ul>	1 Yes 2 No	
HI.17	Inc_own_livestock	<ul style="list-style-type: none"> <li>Livestock</li> </ul>	1 Yes 2 No	
HI.18	Inc_own_other	<ul style="list-style-type: none"> <li>Other</li> </ul>	1 Yes 2 No	
HI.11	Inc_own_radio_num	<ul style="list-style-type: none"> <li>Radio or Radio Cassette</li> </ul>	Quantity	If Inc_own_radio = yes
HI.21	Inc_own_mobile_num	<ul style="list-style-type: none"> <li>Telephone(mobile)</li> </ul>	Quantity	If inc_own_mobile = yes
HI.31	Inc_own_sewm_num	<ul style="list-style-type: none"> <li>Sewing Machine</li> </ul>	Quantity	If own_sewm_num = yes
HI.41	Inc_own_tv_num	<ul style="list-style-type: none"> <li>Television</li> </ul>	Quantity	If inc_own_tv = yes
HI.51	Inc_own_dvd_num	<ul style="list-style-type: none"> <li>Video / DVD</li> </ul>	Quantity	If inc_own_dvd = yes
HI.61	Inc_own_lanterns_num	<ul style="list-style-type: none"> <li>Lanterns</li> </ul>	Quantity	If inc_own_lanterns=yes
HI.71	Inc_own_stove_num	<ul style="list-style-type: none"> <li>Stove</li> </ul>	Quantity	If inc_own_stove = yes
HI.81	Inc_own_bicycle_num	<ul style="list-style-type: none"> <li>Bicycle</li> </ul>	Quantity	If inc_own_bicycle = yes
HI.91	Inc_own_watches_num	<ul style="list-style-type: none"> <li>Watches</li> </ul>	Quantity	If inc_own_watches = yes
HI.101	Inc_own_mnets_num	<ul style="list-style-type: none"> <li>Mosquito net</li> </ul>	Quantity	If inc_own_mnets = yes
HI.111	Inc_own_iron_num	<ul style="list-style-type: none"> <li>Iron (Charcoal or electric)</li> </ul>	Quantity	If inc_own_iron = yes
HI.121	Inc_own_fanair_num	<ul style="list-style-type: none"> <li>Fan/Air conditioner</li> </ul>	Quantity	If inc_own_fanfair = yes
HI.131	Inc_own_fields_num	<ul style="list-style-type: none"> <li>Fields/Land</li> </ul>	Quantity	If inc_own_fields = yes
HI.141	Inc_own_solar_num	<ul style="list-style-type: none"> <li>Solar panel</li> </ul>	Quantity	If inc_own_solar = yes

H1.151	Inc_own_house_num	<ul style="list-style-type: none"> <li>Houses/housing addition</li> </ul>	Quantity	If inc_own_house = yes
H1.161	Inc_own_poultry_num	<ul style="list-style-type: none"> <li>Poultry</li> </ul>	Quantity	If inc_own_poultry = yes
H1.171	Inc_own_livestock_num	<ul style="list-style-type: none"> <li>Livestock</li> </ul>	Quantity	If inc_own_livestock = yes
H1.181	Inc_own_other_num	<ul style="list-style-type: none"> <li>Other</li> </ul>	Quantity by specified item	If inc_own_other = yes
H2	Inc_own_ani	Which of the following animals are owned by the household?	<ol style="list-style-type: none"> <li>Cows, oxens and bulls</li> <li>Horses, donkeys and mules</li> <li>Pigs</li> <li>Goats</li> <li>Sheep</li> <li>Poultry</li> <li>Other</li> <li>None</li> </ol>	
H3	Inc_hwalls	What is the major construction material of the walls of the main dwelling?	<ol style="list-style-type: none"> <li>POLES (INCLUDING BAMBOO), BRANCHES, GRASS)</li> <li>POLES AND MUD/MUD AND STONES</li> <li>MUD ONLY</li> <li>MUD BRICKS</li> <li>BAKED/BURNT BRICKS</li> <li>CONCRETE, CEMENT, STONES</li> <li>990. OTHER, SPECIFY</li> </ol>	Enumerator should directly observe to confirm response.
H4	Inc_hroof	What is the major construction material of the main roof?	<ol style="list-style-type: none"> <li>GRASS, LEAVES, BAMBOO</li> <li>MUD AND GRASS</li> <li>CONCRETE, CEMENT</li> <li>METAL SHEETS (GCI)</li> <li>ASBESTOS SHEETS</li> <li>TILES</li> </ol>	

			7. OTHER, SPECIFY	
H5	Inc_act_n	Other than working on the household plots, did [NAME] do anything else to earn money including work for pay, work in business for (him/herself), work in a family business, making things to sell, casual labor, odd jobs, or any other activity to earn money, during the last 12 months?	1 Yes 2 No	Ask for each hh member older than 15 If 2 >>> H6
H5.1	Inc_jobtype_n	In this work, was [NAME] working for:	1. Work for non-household member/ firm/ company 2. "non-farm on own account/ household enterprise" 3. Farm owned or rented by household member	If Inc_act_n== Yes
H5.2	Inc_occtype_n	What activity did [NAME] do?	1. FISHING 2. MINING 3. TOURISM 4. GOVERNMENT OFFICE 5. PARASTATAL 6. PRIVATE SECTOR 7. NGO / RELIGIOUS 8. SELF-EMPLOYED (NOT AGRICULTURE): WITH EMPLOYEES 9. SELF-EMPLOYED (NOT AGRICULTURE): W/OUT EMPLOYEES 10. UNPAID HOUSEHOLD LABOUR	
H5.3	Inc_months	During the last 12 months, for how many months did [NAME] work in their job?	Enter months	

H5.4	Inc_hours	During the last 12 months, how many hours did [NAME] usually work in this job each day?	Enter hours	
H5.5	Inc_paid	Was [NAME] being paid in this job?	1 Yes 2 No	
H5.5.1	Inc_period_n	How much was [NAME] being paid?	<b>Amount (TZS)</b>	<b>Period of payment</b>  1 Month 2 Fortnight 3 Week 4 Day 5 Other
H6	Inc_inc	For each of the following, can you tell me if anyone in your household earned income from this source in the past 12 months?  READ EACH OPTION OUT LOUD AND MARK IF ANSWER IS "YES"	1 Yes 2 No	
H6.1	Inc_inc_wage	<ul style="list-style-type: none"> <li>Wage and/or self-employment income</li> </ul>	1 Yes 2 No	
H6.2	Inc_inc_rent	<ul style="list-style-type: none"> <li>Rental of land / property</li> </ul>	1 Yes 2 No	
H6.3	Inc_inc equip	<ul style="list-style-type: none"> <li>Rental of farm equipment / animals</li> </ul>	1 Yes 2 No	
H6.4	Inc_inc_saleanim	<ul style="list-style-type: none"> <li>Sale of livestock</li> </ul>	1 Yes 2 No	
H6.5	Inc_inc_animprod	<ul style="list-style-type: none"> <li>Revenue from livestock products</li> </ul>	1 Yes 2 No	
H6.6	Inc_inc_asset	<ul style="list-style-type: none"> <li>Sale of household assets</li> </ul>	1 Yes 2 No	
H6.7	Inc_inc_remit	<ul style="list-style-type: none"> <li>Remittances from family outside the household, friends or others</li> </ul>	1 Yes 2 No	
H6.8	Inc_inc_ss nit	<ul style="list-style-type: none"> <li>Social Security National Insurance Trust, or SSNIT</li> </ul>	1 Yes 2 No	
H6.9	Inc_inc_pension	<ul style="list-style-type: none"> <li>Private pensions or other retirement payments</li> </ul>	1 Yes 2 No	
H6.10	Inc_inc_govt	<ul style="list-style-type: none"> <li>Social assistance payments from the government (i.e., scholarships, disability payments, etc.)</li> </ul>	1 Yes 2 No	
H6.11	Inc_inc_ngo	<ul style="list-style-type: none"> <li>Social assistance from aid programs, churches,</li> </ul>	1 Yes	

		NGOs, or other organizations	2 No	
H7	Inc_earn	For each of the following YES responses in H6, can you tell me how much anyone in your household earned from this source?	Amount in TZS	
H7.1	Inc_earn_wage	<ul style="list-style-type: none"> <li>• Wage and/or self-employment income</li> </ul>		If H6.1 == 1
H7.2	Inc_earn_rent	<ul style="list-style-type: none"> <li>• Rental of land / property</li> </ul>		If H6.2 == 1
H7.3	Inc_earn equip	<ul style="list-style-type: none"> <li>• Rental of farm equipment / animals</li> </ul>		If H6.3 == 1
H7.4	Inc_earn_saleanim	<ul style="list-style-type: none"> <li>• Sale of livestock</li> </ul>		If H6.4 == 1
H7.5	Inc_earn_animprod	<ul style="list-style-type: none"> <li>• Revenue from livestock products</li> </ul>		If H6.5 == 1
H7.6	Inc_earn_asset	<ul style="list-style-type: none"> <li>• Sale of household assets</li> </ul>		If H6.6 == 1
H7.7	Inc_earn_remit	<ul style="list-style-type: none"> <li>• Remittances from family outside the household, friends or others</li> </ul>		If H6.7 == 1
H7.8	Inc_earn_ssmit	<ul style="list-style-type: none"> <li>• Social Security National Insurance Trust, or SSNIT</li> </ul>		If H6.8 == 1
H7.9	Inc_earn_pension	<ul style="list-style-type: none"> <li>• Private pensions or other retirement payments</li> </ul>		If H6.9 == 1
H7.10	Inc_earn_govt	<ul style="list-style-type: none"> <li>• Social assistance payments from the government (i.e., scholarships, disability payments, etc.)</li> </ul>		If H6.10 == 1
H7.11	Inc_earn_ngo	<ul style="list-style-type: none"> <li>• Social assistance from aid programs, churches, NGOs, or other organizations</li> </ul>		If H6.11 == 1

**I. Household Savings, Borrowing, and Shocks**

	Name	Question	Response options/units	Notes/instructions
<i>Thank you. I would like to ask a few questions now about how your household manages expenses.</i>				
11	Fin_credsource	In the past six months, has anyone in your household borrowed money?	1 Yes 2 No	If 2 >>> 13
11.1	Fin_credfrom	Who did they borrow from?	1. COMMERCIAL BANKS 2. MICRO-FINANCE INST 3. VILLAGE COMMUNITY BANK (VICOBA) 4. NEIGHBOURS / FRIENDS 5. FAMILY 6. NGO OR SELF-HELP GROUPS 7. OTHER INFORMAL MONEY LENDER 8. OTHER, SPECIFY	If fin_credsource = yes
12	Fin_amtbrw	In total, approximately how much has your household borrowed in the past 1.5 years?	TZ shillings	If yes to “has your household borrowed”
13	Fin_wntloan	If you wanted to get a loan of to cover your expenses or buy farm inputs, do you think you or anyone in your household would be able to do that?	1 Yes 2 No 996 Don't know	
14	Fin_bankacct	Do you or anyone else in your household have a bank account, either with a commercial bank, a credit union, or other similar institution?	1 Yes 2 No 996 Don't know	If yes or maybe to previous If 2 OR 996 >>> 16
15	Fin_bankname	Please list up to 3 institutions with whom you or a member of your household has a savings account.	Enter name 998 Can't recall / remember	If Fin_bankacct = yes If 998 >>> 16
15.1	Fin_bankyear	What year did you open the account?	Enter year 998 if can't recall	If Fin_bankacct=yes
15.2	Fin_bankmonth	What month did you open the account?	Enter month 998 Can't recall / remember	If Fin_bankacct = yes
16	Fin_shock	Did your household experience any unusual problems during the past year that affected your HH's ability to eat or changed what your household owned?	1 Yes 2 No 996 Don't know	If 2 OR 996, skip to next section.

17	Fin_typshock	Please select the first and second events that had the biggest impact on your household in the past 12 months.	1 DROUGHT/BAD RAINFALL 2 FLOODS 3 LANDSLIDES & MUDSLIDES 4 CROP PESTS & DISEASE 5 LIVESTOCK DISEASES 6 HIGH COST OF SEED, FERTILIZER 7 JOB LOSS FOR A HH MEMBER 8 SERIOUS ILLNESS, ACCIDENT, OR DEATH OF HH MEMBER 9 INSECURITY/VIOLENCE 990 OTHER, SPECIFY	If yes to previous Select top two.
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**J. Food Security**

	Name	Question	Response options/units	Notes/instructions
<b><i>In this next set of questions, I want to ask about your food situation. Thank you.</i></b>				
J1	Fd_season	In the last 12 months, have you been faced with a situation when you did not have enough food to feed the household?	1 Yes 2 No	If 2 >>> J2
J1.1	Fd_seasonday	For how long did you face this situation?	Enter days.	
J2	Fd_worry	During the past 12 months, did you worry that your household would not have enough food?	0 No (it did not happen) 1 Rarely (once or twice) 2 Sometimes (three to ten times) 3 Often (more than 10 times)	
J3	Fd_kinds	During the past 12 months, did it happen that you or someone in your household were not able to eat the <u>kinds of foods you would have preferred</u> to eat because of lack of resources?	0 No (it did not happen) 1 Rarely (once or twice) 2 Sometimes (three to ten times) 3 Often (more than 10 times)	(Note emphasis on KINDS of foods)
J4	Fd_fewml	During the past 12 months, did it happen that you or any other household member had to eat <u>fewer meals in a day</u> because there was not enough food?	0 No (it did not happen) 1 Rarely (once or twice) 2 Sometimes (three to ten times) 3 Often (more than 10 times)	
J5	Fd_nofood	During the past 12 months, did it happen that there was <u>no food to eat of any kind</u> in your house, because of lack of resources to get food?	0 No (it did not happen) 1 Rarely (once or twice) 2 Sometimes (three to ten times) 3 Often (more than 10 times)	
	Fd_bed	During the past 12 months, did it happen that you or any household member <u>went to sleep at night hungry</u> because there was not enough food?	0 No (it did not happen) 1 Rarely (once or twice) 2 Sometimes (three to ten times) 3 Often (more than 10 times)	

**K. Self Efficacy**

	Name	Question	Response options/units	Notes/instructions
<b><i>Thank you. Now I am going to read out some statements to you; please tell me how true each of the statements is about you.</i></b>				
K1	Eff_solve	I can always manage to solve my problems if I try hard enough	1 not at all true;2 hardly true;3 moderately true;4 exactly true	
K2	Eff_opp	If someone opposes me, I can find the means and ways to get what I want	1 not at all true;2 hardly true;3 moderately true;4 exactly true	
K3	Eff_acc	I am certain I can accomplish my goals	1 not at all true;2 hardly true;3 moderately true;4 exactly true	
K4	Eff_shocks	I am confident that I could deal effectively with unexpected events	1 not at all true;2 hardly true;3 moderately true;4 exactly true	
K5	Ef_resour	Thanks to my resourcefulness, I can handle unforeseen situations	1 not at all true;2 hardly true;3 moderately true;4 exactly true	
K6	Eff_effort	I can solve most problems if I invest the necessary effort	1 not at all true;2 hardly true;3 moderately true;4 exactly true	
K7	Eff_calm	I can remain calm when facing difficulties because I can rely on my strength to cope	1 not at all true;2 hardly true;3 moderately true;4 exactly true	
K8	Eff_alter	When I am confronted with a problem, I always look for an alternative solution	1 not at all true;2 hardly true;3 moderately true;4 exactly true	
K9	Eff_troub	If I am in trouble, I can think of a good solution	1 not at all true;2 hardly true;3 moderately true;4 exactly true	
K10	Eff_hnd	I can handle whatever comes my way	1 not at all true;2 hardly true;3 moderately true;4 exactly true	

***Skip to section M after this Module for male head of households.  
Skip to section L.A Time Allocation after this Module for female head of households.***

<b>L. Wives/Partners Survey</b>				
	<b>Name</b>	<b>Question</b>	<b>Response options/units</b>	<b>Notes/instructions</b>
<b><i>Thank you for agreeing to answer a few of our questions. We are going to start with some questions to record your basic information.</i></b>				
L1	wives_consent	Did the respondent consent?	1 Yes 2 No	If 2 >>> End Interview
L2	wives_wmarried	What is your marital status	1=Monogamously married 2=Polygamously married	
L3	wives_wage)	What is your age?	years	
L4	wives_wreligion	What is your religion, if any?	1. Christian (Protestant) 2. Christian (Catholic) 3. Muslim 4. None 5. Other	
L5	wives_wed	What is the highest level of education you have attained?	PRIMARY P1.....11 P2.....12 P3.....13 P4.....14 P5.....15 P6.....16 P7.....17 FORM F1.....21 F2.....22 F3.....23 F4.....24 'O'+COURSE.25 F5.....31 F6.....32 'A'+COURSE.33 DIPLOMA...34 U1.....41 U2.....42 U3.....43 U4.....44 U5&+.....45	
L6	wives_wborn	Were you born in this village?	1 Yes 2 No	If 1 >>> L9
L7	wives_wborndist	Where is the village where you were born?		
L8	wives_wyrslive	How many years have you lived in this village?		

L9	Wives_looshus	In the next 5 years, how worried would you be about losing your land if your husband died?	1 Very Worried 2 Somewhat Worried 3 Not worried at all 996 DK 997 Refused to answer	
L10	wives_takeextfam	In the next 5 years, how likely is it that someone from within your extended family will take over the use of this field without your HH's permission/agreement?	1=Very Likely 2=Likely 3=Neutral 4=Somewhat unlikely 5=Very unlikely 996=Don't know 997=Prefer not to reply	
<b>Now I'd like to ask you some questions about your participation in certain types of work activities and on making decisions on various aspects of household life</b>				
L11	wives_part	Did you yourself participate in [ACTIVITY] in the past 12 months (that is, during the last [one/two] cropping seasons), from [PRESENT MONTH] last year to [PRESENT MONTH] this year?  A) Food crop farming B) Cash crop farming C) Livestock raising D) Non-farm economic activities. E) Wage and Salary employment F) Fishing or fishpond culture G) Major hh expenditures H) Minor hh expenditures	1 Yes 2 No	If emp_part==No -> skip to next activity. Activity:
L12	wives_decision	When decisions are made regarding [ACTIVITY], who is it that normally takes the decision?	1. Self 2. Spouse 3. Both spouse and self (joint decision making) 4. Other HH member 5. Other Non-HH member 999. N/A	If emp_decision==1, skip to next activity. No response needed if activity==G or H.
L13	Wives_decisionfreq	When decisions are made regarding [ACTIVITY], how often does the decision maker inform you about the decision?	1 Always 2 Sometimes 3 Rarely 4 Never 5 Unsure	If emp_decision != 1 answer this

L14	wives_input	How much input did you have in making decisions about [ACTIVITY] in the past 12 months?	1. No input or input in few decisions, 2. Input into some decisions, 3. Input into most or all decisions, 98. No decision made/Not sure	If emp_input==98, skip to next activity
L15	emp_extent	To what extent do you feel you can make your own personal decisions regarding [ACTIVITY] if you want(ed) to?	1. Not at all, 2. Small extent, 3. Medium Extent, 4. To a high extent.	
L16	emp_use_inc	How much input did you have in decisions on the use of income generated from [ACTIVITY]	1. No input or input in few decisions, 2. Input into some decisions, 3. Input into most or all decisions, 98. No decision made/Not Sure	No response needed if activity==G or H.
L17	Wives_landlaw	Do you know about the national land laws?	1 Yes 2 Yes, but don't know the details 3 No	
L18	Wives_hearing	How confident are you that you would receive a fair hearing if you had a land dispute?	1 Very confident 2 Somewhat confident 3 Unsure 4 Not confident 5 Very unconfident	
L19	Wives_takepos	Do you think it's possible that someone could try to take one of your parcels from you without your permission, say in the next 5 years?	1 Yes 2 No	Enumerator should specify only the parcels in targeted commune if the respondent has parcels in other communes  If 2 >>> L22
L20	Wives_expro	How likely do think it is that someone would try to take one of your parcels from you in the next 5 years?	1 Unlikely 2 Somewhat likely 3 Very likely/it is happening now	If wives_takepos = yes
L21	Wives_reason	Which if any of the following are reasons why you think this could happen? <ul style="list-style-type: none"> <li>• Ongoing or past disputes or expropriation</li> <li>• Lack of documents</li> <li>• Length of agreement (if lease agreement for example)</li> <li>• Problems experienced by others in the community</li> </ul>	1 More important reason 2 Less important reason 3 Not a reason	If per_takepos = yes
L22	Wives_meet	How many group/village meetings have you attended in the past six months?	Enter number	

L22.1	Wive_meet_n	What kind of meetings have you attended?	1. Kitongoji Meetings 2. Village Meetings 3. Farmers' cooperative meetings 4. SACCOS or self-help group meeting 5. School meetings (SMC or parents) 6. Other	If wives_meet !=0
L22.2	Wives_meetfreq_n	How many times did you attend [MEETING]?	Enter number	
L22.3	Wives_speak	How many of those meetings have you spoken to the group?	Enter number	
L22.4	Wives_speakfreq	How many times did you speak at [MEETING]?	Enter number	If wives_speak != 0
L23	Wives_comfort	Do you feel comfortable speaking at village meetings or in group settings?	1 Yes 2 No	
L24	Wives_wgroup	Are there women's groups in the village or surrounding area?	1 Yes 2 No	If yes, continue If 2 >>> L26
L25	Wives_wattend	How many women's group meetings have you attended?	Enter number	If >0, continue
L25.1	Wive_totattend	How many women would you estimate were at the meeting?	Enter number	If many meetings (>10) were attended, this should refer to average.
L26	Wives_Lan_dcd_i	Who primarily decides how to use this household's parcel(s)?	1=Self 2 =Spouse 3=Both self and spouse together 4=Other male household member 5=Other female household member 990=Other, specify	
L27	Wives_Lan_inco_i	Who decides how to use any income generated from the use of this household's parcel(s)?	1=Self 2=Spouse 3=Both self and spouse together 4=Other male household member 5=Other female household member 990=Other, specify	
<b>Next I'd like to ask about your household's experience with borrowing money or other items in the past 12 months.</b>				
L28	Wives_loan	Over the past 12 months, did you or anyone else in this household borrow from someone outside the household or from an institution receiving either cash, goods, or services?	1 Yes 2 No	If 2 >>> L29
L28.1	Wive_loan_source	What was the source of the loan(s)?	1 COMMERCIAL BANKS	Select all that apply

			2 MICRO-FINANCE INST 3 VILLAGE COMMUNITY BANK (VICOBA) 4 NEIGHBOURS / FRIENDS 5 FAMILY 6 NGO OR SELF-HELP GROUPS 7 OTHER INFORMAL MONEY LENDER 990 OTHER, SPECIFY	
L28.2	Wives_loan_dec	Who made the decision to borrow from [SOURCE] most of the time?	1 SELF 2 SPOUSE 3 Both spouse and self (joint decision making) 4 OTHER HH MEMBER 5 OTHER NON-HH MEMBER 999 NOT APPLICABLE	Select all that apply
L28.3	Wives_loan_decuse	Who makes the decision about what to do with the money/ item borrowed from [SOURCE] most of the time?	1 SELF 2 SPOUSE 3 Both spouse and self 4 OTHER HH MEMBER OTHER NON-HH MEMBER 999 NOT APPLICABLE	Select all that apply
L28.4	Wives_loan_use	What did you use this loan/credit for?	1 SUBSISTENCE NEEDS 2 MEDICAL COST 3 SCHOOL FEES 4 CEREMONY/WEDDING 5 PURCHASE LAND 6 PURCHASE AGRIC. INPUTS 7 OTHER BUSINESS INPUTS 8 PURCHASE AGRIC. MACHINERY 9 BUY/BUILD DWELLING 990 OTHER(SPECIFY)	
L29	Wives_Lan_doc_i	Do you or your household have any kind of documentation of your rights to your HH's parcels?	1 Yes 2 No	If 2 >>> L31
L29.1	Wives_Lan_typedoc_i	What kind of documentation? SELECT ALL THAT APPLY	1. GRANTED RIGHT OF OCCUPANCY 2. CERTIFICATE OF CUSTOMARY RIGHT OF	If land_doc_i=yes next question

			OCCUPANCY 3. INHERITANCE LETTER 4. OTHER GOVERNMENT DOCUMENT 5. OTHER DOCUMENT OR LETTER (NON-GOVERNMENT/UNOFFICIAL)	
L29.2	Wives_Lan_docobtain_i	When did you obtain the documentation?	Year/Month	If wives_land_doc_i=yes next question
L29.3	Wives_Lan_docobtain_i	How many people have ownership rights under this documentation?		Enter number
<b>Now I am going to read out some statements to you; please tell me how true each of the statements is about you.</b>				
L30	Wives_Eff_solve	I can always manage to solve my problems if I try hard enough	1 not at all true;2 hardly true;3 moderately true;4 exactly true	
L31	Wives_Eff_opp	If someone opposes me, I can find the means and ways to get what I want	1 not at all true;2 hardly true;3 moderately true;4 exactly true	
L32	Wives_Eff_accu	I am certain I can accomplish my goals	1 not at all true;2 hardly true;3 moderately true;4 exactly true	
L33	Wives_Eff_shocks	I am confident that I could deal effectively with unexpected events	1 not at all true;2 hardly true;3 moderately true;4 exactly true	
L34	Wives_Ef_resour	Thanks to my resourcefulness, I can handle unforeseen situations	1 not at all true;2 hardly true;3 moderately true;4 exactly true	
L35	Wives_Eff_effort	I can solve most problems if I invest the necessary effort	1 not at all true;2 hardly true;3 moderately true;4 exactly true	
L36	Wives_Eff_calm	I can remain calm when facing difficulties because I can rely on my strength to cope	1 not at all true;2 hardly true;3 moderately true;4 exactly true	
L37	Wives_Eff_alter	When I am confronted with a problem, I always look for an alternative solution	1 not at all true;2 hardly true;3 moderately true;4 exactly true	
L38	Wives_Eff_troub	If I am in trouble, I can think of a good solution	1 not at all true;2 hardly true;3 moderately true;4 exactly true	
L39	Wives_Eff_hnd	I can handle whatever comes my way	1 not at all true;2 hardly true;3 moderately true;4 exactly true	
L40	Per_landlaw	How well do you understand the official land laws?	1 Very well 2 Familiar but don't know the details 3 Familiar with some rules but don't know if they are official law 4 Unsure	
L41	Wives_CCRO	Have you heard of CCROs?	1 Yes 2 No	If 2 >>>Wives_LTA

L41.1	Wives_payCCRO	In general, how much (if anything) would you be willing to pay to have one of your parcels surveyed and to receive a CCRO?		Enter amount in TShs.
L42	Wives_LTA	Have you heard of [LTA]?	1 Yes 2 No	If 2 >>> Next section. DO NOT PROMPT IF RESPONDENT HAS NOT HEARD OF LTA.
L42.1	Wives_LTArec	Which of the following did you receive through LTA?	<ul style="list-style-type: none"> <li>• Land was surveyed</li> <li>• CCRO</li> <li>• Notarized title</li> <li>• None of the above</li> </ul>	If Wives_LTA= yes
L42.2	Wives_LTAimpr	What was your impression of LTA?	1 Very positive 2 Somewhat positive 3 Neutral 4 Somewhat negative 5 Very negative	If Wives_LTA = yes
L42.3	Wives_docyben	Do you believe that having documentation of your land rights through LTA benefits your household?	1 Yes 2 No	
L42.4	Wives_LTAcom	<p>Do you think LTA has benefited your community in any of the following ways:</p> <ul style="list-style-type: none"> <li>• Protects against losing land</li> <li>• Protects against disputes with neighbors</li> <li>• Makes it easier to rent out</li> <li>• Makes it easier to sell</li> <li>• Will make inheritance easier</li> <li>• Other</li> </ul> <p>SELECT ALL THAT APPLY</p>	1. YES 2. NO	If Wives_docyben = yes

#### L.A Time Allocation

Now I'd like to ask you about how you spent your time during the past 24 hours. We'll begin from yesterday morning, and continue through to this morning. This will be a detailed accounting. I'm interested in everything you do (i.e. resting, eating, personal care, work inside and outside the home, caring for children, cooking, shopping, socializing, etc.), even if it doesn't take you much time.

PLEASE RECORD A LOG OF THE ACTIVITIES FOR THE INDIVIDUAL IN THE LAST COMPLETE 24 HOURS (STARTING YESTERDAY MORNING AT 4 AM, FINISHING 3:59 AM OF THE CURRENT DAY). THE TIME INTERVALS ARE MARKED IN 15 MIN INTERVALS AND ONE ACTIVITY CAN BE MARKED FOR EACH TIME PERIOD BY DRAWING AN X THROUGH THAT ACTIVITY.

Activity	Night			Morning				Day				Day			
	4	5	6	7	8	9	10	11	12	13	14	14	15	16	17
A Sleeping and resting															
B Eating and drinking															
C Personal care															
D School (also homework)															
E Work as employed															
F Own business work															
G Farming/livestock/fishing															
H Shopping/getting service (incl health services)															
I Weaving, sewing, textile care															
J Cooking															
K Domestic work (incl fetching wood and water)															
L Care for children/adults/elderly															
M Travelling and communiting															
N Watching TV/listening to radio/reading															
O Exercising															
P Social activities and hobbies															
Q Religious activities															
R Other, specify...															

Activity	Evening			Night							
	17	18	19	20	21	22	23	24	1	2	3
A Sleeping and resting											
B Eating and drinking											
C Personal care											
D School (also homework)											
E Work as employed											
F Own business work											
G Farming/livestock/fishing											
H Shopping/getting service (incl health services)											
I Weaving, sewing, textile care											
J Cooking											
K Domestic work (incl fetching wood and water)											
L Care for children/adults/elderly											
M Travelling and communiting											
N Watching TV/listening to radio/reading											
O Exercising											
P Social activities and hobbies											
Q Religious activities											
R Other, specify...											

**Capture GPS at this point**

**FOR FEMALE HEAD OF HOUSEHOLDS CONTINUE TO SECTION M AFTER FILLING OUT THE TIME USE SURVEY.**

**M. Sketch map instructions**

The purpose of the sketch map exercise is to improve the accuracy with which parcels can be re-identified in follow-up rounds of the survey. The sketch map exercise should be carried out just prior to the Land Holdings and Characteristics section of the questionnaire. The enumerator should draw the sketch map, with instructions from the respondent and any other household members present. The parcel on which the interview is being conducted should be located in the center of the map. Each of the household's other parcels should be indicated on the map according to the distance and direction and the respondent indicates. On the sketch map, the enumerator should record the following for each of the parcels:

- Time it takes to reach that parcel by foot from the home
- Name of the parcel
- Size of the parcel
- How long ago did the household acquire (or begin renting) the parcel?
- Type of terrain
- Land use in the past season (agriculture, left fallow, non-agricultural use)
- If agriculture, the main crop that is grown on the parcel

The map should also show geographic features such as rivers, roads, mountains, and the village center that will help to show where the parcel is.

**[TAKE PHOTO OF SKETCH]**

**GPS STAMP.**

Midline Survey

## ADMINISTRATIVE INFORMATION

**L. Admin info**

<b>Household number</b>			
<b>Date of interview:</b>	<b>DD</b>	<b>MM</b>	<b>YY</b>
<b>Time of interview:</b> <i>(24 hour clock)</i>	<b>Start</b> <b>MM</b>	<b>HH</b>	<b>Stop</b> <b>HH MM</b>
<b>Name of interviewer:</b>			
<b>Code of interviewer</b>			
<b>Place of interview:</b>			
<b>Ward</b>			
<b>Village</b>			
<b>Point of interview</b>	<ol style="list-style-type: none"> <li>1. Respondent's residence</li> <li>2. In one of the household's parcel of land</li> <li>3. Away from respondent's place of residence and/or parcel of land</li> </ol>		
<b>GPS Coordinates</b>			
<b>Number of visits (max. of 3)</b>			
<b>Reason for call back</b>	<b>Number of visits</b>		
	<b>1</b>	<b>2</b>	<b>3</b>
Refused to be interviewed	1	1	1
Target respondent not at home	2	2	2
Target respondent requested for a call back			
No one in the household	3	3	3
Respondent not able to be interviewed due to medical reasons (very sick, dumb, etc.)	4	4	4
No adult member in the household	5	5	5
Language barrier	6	6	6
Not applicable	99	99	99
<b>Outcome of final visit</b>	<b>Successful</b>	<b>Incomplete</b>	<b>Replaced</b>
<b>Field quality control checks (sign as appropriate)</b>			
<b>Activity</b>	<b>Activity undertaken by</b>		
	<b>Interviewer</b>	<b>Supervisor</b>	
<b>Reviewed</b>			

<b>Accompanied</b>		
<b>Back checked</b>		
<b>Called back</b>		

**M. HH Roster info**

BI.2	hou_num_n	How many members constitute this household?	Enter number of household members based on hou_nme.	
BI.3	hou_nme	Can you tell me the name of all the members of this household?		RECORD THE HOUSEHOLD MEMBERS BEGINNING WITH THE HOUSEHOLD HEAD, FOLLOWED BY THE SPOUSE AND THEN THE CHILDREN STARTING WITH OLDEST FIRST AND CONCLUDING WITH THE YOUNGEST.
B5	hou_age_n	How old is [NAME] in completed years?		Enter age. Enter 996 for Don't Know.

**N. Agricultural Organizations, Services and Training**

	Name	Question	Response options/units	Notes/instructions
C3	org_srv	Did you or anyone in your household receive any agricultural extension services in the past 12 months?	3. Yes 4. No 997. Don't know	If 2 >>> C5
C3.1	org_prd	What kind of services were provided?	13. Access to improved seed 14. Fertilizer, pesticides and other chemical inputs 15. Tractor services 16. Marketing services 17. Transport services 18. The opportunity to participate in a value chain scheme 19. Help to form or strengthen farmer groups 20. Contract farming 21. Post-harvest processing of ANY of crops (including drying, sorting, packaging, and/or storing) 22. Purchasing of ANY of the crops 23. Training on agricultural production and/or processing 24. Training on business practices	If org_srv = yes

			991. Other, SPECIFY _____	
C3.2	org_used_srv	How often has anyone in your household made use of extension services in the past 12 months?	6 3 times or more 7 Once or twice 8 Never	
C4	org_trnd	In the past 12 months, have you or anyone in your household received any kind of community or organizational assistance related to agriculture, such as assistance from an NGO or community group?	3. Yes 4. No 997. Don't know	If org_trnd != 1 skip to next module If 2 OR 996 >>> Next Section
C4.1	org_what	What kind of services were provided?	8. Free food/maize distribution 9. Food-for-work programme or cash-for-work programme 10. Inputs-for work programme 11. Attended a training or workshop 12. Had an agent visit my/our parcel(s) 13. Read a pamphlet 14. Other assistance (not listed above)	
C4.2	org_frequ	For how many days in the past 12 months did you or anyone in your household receive these services?	Enter days	
C5	org_name	Are you aware of these organizations working in your village?  MARK ALL THAT APPLY	23. One Acre Fund 24. Briten 25. Unicef 26. Eadd 27. Cuamm 28. Clinton Foundation 29. Tahea 30. Camfed 31. Cefa 32. Wopata 33. Jica 34. TIB 35. Concern 36. Tunajali 37. SNV 38. TNRF 39. TCD 40. IMO 41. Cheet	Select all that apply

			42. Restless Development 43. LEAT 44. Caltas	
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### O. Land Holdings and Characteristics

	Name	Question	Response options/units	Notes/instructions
<b><i>Thank you for the earlier responses. I would now like to ask you a few questions about your land holdings and the parcels you farm.</i></b>				
D1	Lan_num	How many different parcels does the household own, rent, or use?	Enter number	
D2	Lan_name	Please give each parcel a name so we can keep track during the interview		If lan_num > 1. From here down, ask for each parcel.
D6	Lan_size_i	What is the size of [PARCEL ID]?	Quantity	Unit
D12	Lan_doc_i	Do you or your household have any kind of documentation of your rights to any of your parcels?	3. Yes 4. No 997. Don't know	If Lan_doc_i != 2 OR 996 skip to Lan_use_i (D13)
D12.1	Lan_docparcel_i	Which parcels?	Record Parcel IDs	
D12.2	Lan_typedoc_i	What kind of documentation? SELECT ALL THAT APPLY.	6. GRANTED RIGHT OF OCCUPANCY 7. CERTIFICATE OF CUSTOMARY RIGHT OF OCCUPANCY (CCRO) 8. INHERITANCE LETTER 9. OTHER GOVERNMENT DOCUMENT 10. OTHER DOCUMENT OR LETTER (NON-GOVERNMENT/UNOFFICIAL)	
D12.3	Lan_docobtain_i	What year did you obtain the documentation for [PARCEL ID]?	Year	If land_doc_i=yes next question. 996 if unsure/don't know.
D12.4	Lan_docobtainmon_i	What month did you obtain the documentation for [PARCEL ID]?	Month	Enter 996 if unsure/don't know
D12.5	Lan_docnum_i	How many people in household have their names listed on the documentation you have for [PARCEL ID]?		Enter number; If don't know, enter 996
D12.6	Lan_docwho_i	Who in the household is listed as the primary land user on the documentation for [PARCEL ID]?	5. Self/Husband 6. Wife/Spouse 7. Jointly listed (husband/wife)	

			8. Other 997. Don't know	
D12.7	Lan_docphys_i	Do you have a personal copy of the document?	1 Yes 2 No	If lan_typedoc_i == 2 (ccro) If 2 >>> D12.9
D12.8	Lan_docloc_i	Where do you store a copy of the document?	5. In homestead 6. With a nearby family member 7. At the village center 8. At the DLO/With the government	If lan_typedoc_i == 2 (ccro)
D12.9	Lan_docuse_i	Have you ever had to reference the document?	1 Yes 2 No	If lan_typedoc_i == 2 (ccro) If 2 >>> D13
D12.10	Lan_docusetype_i	Why did you reference the document?	6. To resolve a dispute 7. To obtain a loan 8. To plan inheritance 9. To prove ownership (not dispute related) 10. As part of a rental agreement 991. Other	Lan_docuse_i == yes
D13	Lan_use_i	During last year's agricultural seasons, did your household farm [PARCEL ID], leave it fallow, or use it for pasture or some other non-agricultural use?	1 Farmed this parcel 2 Left this parcel fallow 3 Used this parcel as pasture/other non-agricultural use	
D17	Lan_inherp_i	Do you have an inheritance plan for your parcels?	1 Yes 2 No	If no skip to lan_svy_i
D17.1	Lan_inhe_who_i	Have you discussed this plan with anyone?	1 Yes 2 No	If not skip to lan_svy_i
D17.2	Lan_inhe_name	Who have you discussed this with?	1 Wife/Spouse 5 Children 3 Other Family 9 Village leaders 10 Other	
D18	Lan_svy_i	Have your parcels ever been mapped by surveyor?	1 Yes 2 No 996 Don't know	If 2 OR 996 >>> D24
D24	Lan_irr_i	Are your parcels irrigated?	1 Yes 2 No	

D25	Lan_restyn_i	Have you ever left any of your parcels fallow?	1 Yes 2 No	If 2, skip to lan_imp_i
D25.1	Lan_rest_i	What was the most recent year in which you left any of your parcels fallow?		Enter 996 if don't know;
D25.2	Lan_restperct_i	What portion of your parcels were left fallow?	Enter percentage	Answer only if lan_restyn_i = 1
D26	Lan_imp_i	For each of the following items I am going to ask about, I want to know if you have made any of the following improvements to this parcel in the past six months		
D26.1	Lan_imp_well_i	<ul style="list-style-type: none"> <li>• Digging wells or pump irrigation</li> </ul>	1 Yes 2 No	
D26.2	Lan_imp_building_i	<ul style="list-style-type: none"> <li>• Erecting buildings</li> </ul>	1 Yes 2 No	
D26.3	Lan_imp_fence_i	Erecting fencing	1 Yes 2 No	
D26.4	Lan_imp_terr_i	<ul style="list-style-type: none"> <li>• Terracing</li> </ul>	1 Yes 2 No	
D26.5	Lan_imp_soil_i	<ul style="list-style-type: none"> <li>• Soil conservation</li> </ul>	1 Yes 2 No	

**P. Perceptions of land rights**

	<b>Name</b>	<b>Question</b>	<b>Response options/units</b>	<b>Notes/instructions</b>
		Ok. I would like to ask you about some issues around land in this village. I only want to talk about parcels here (in this village), not things you may have heard in nearby villages (or plots you may have elsewhere).		Leave out mention of parcels in other villages if it is not relevant.
F1	Per_takepos	In the next five years, do you think it's possible that someone could try to take one of your parcels from you without your permission?	1 Yes 2 No 996 Don't know	If 2 OR 996 >>> F6
F2	Per_expro	How likely do think it is that someone would try to take one of your parcels from you in the next 5 years?	1 Possible but unlikely 2 Somewhat likely 3 Very likely/it is happening now	If per_takepos = yes
F4	Per_source_i	Who do you think would try to take your parcels?	8. Government 9. Foreign investor 10. Tanzanian investor (from outside the village) 11. Someone inside the village 12. Absentee owner/land claimants 13. Extended family 14. Other	If per_expro != 1
F5	Per_reason	Which if any of the following are reasons why you think this could happen? Please rank from the most important reason to the least important reason 5. Ongoing or past disputes or expropriation 6. Lack of documents 7. Length of agreement (if lease agreement for example) 8. Problems experienced by others in the community	Enter rank order. If one or more options are not relevant, ask for top rank and then determine which seem the least irrelevant of the irrelevant options and work from there.	If per_takepos = yes
F7	Per_comworry	In general, how many people in your community are worried that someone might try to take their land against their will?	1 None or very few 2 Some are worried but most are not 3 Most are worried but not all 4 All or nearly all are worried	

F8	Per_borpos	Do you think it's possible that you could have a dispute over the borders of one of your parcels with a neighbor in the next 5 years?	1 Yes 2 No	If 2 >>> F10
F9	Per_disputeprob	How likely do think it is that you could have a dispute over the borders of one of your parcels with a neighbor in the next 5 years?	1 Possible, but unlikely 2 Somewhat likely 3 Very likely/it is happening now	If per_borpos = yes
F10	Per_reasonwhy	Which if any of the following are reasons why you don't think this is possible? <ul style="list-style-type: none"> <li>• My family has owned/used the parcel for a long time</li> <li>• Lack of problems in the past</li> <li>• Land has been surveyed</li> <li>• HH has documentation of rights</li> <li>• Village Council/Elders/Leaders can easily address potential disputes</li> </ul>	Select all that apply.	If per_takepos = no
F14	Per_future	In the next 12 months, do you expect problems with land disputes will improve, stay the same, or get worse?	1 Improved 2 Stayed the same 3 Gotten worse	
F15	Per_coma	Do you use communal pasture land?	1 Yes 2 No	If 2 >>> F17
F16	Per_coml	Do you think it is possible that you will lose your existing rights on communal pasture land in the next 12 months?	1 Yes 2 No 996 Don't know	Answer if per_coma=Yes If 2 OR 996 >>> F17
F16.1	Per_coml_why	How likely do you think it is that you would lose your existing rights on communal pasture land in the next 12 months	1 Highly likely 2 Somewhat likely 3 Possible but unlikely	If per_coml = Yes
F16.2	Per_comr	Why do you think you will lose your existing rights on communal pasture land in the future?	1= Local farmers encroaching onto communal land or access routes. 2= Village will decide to allocate the land for other uses. 3= The government will allocate the communal land to an investor 990= Other (please specify)	Answer if per_coml=Yes

F17	Per_fallow	How much of a risk is there that someone will take over one of your plots if you leave it fallow?	1 Very high risk 2 Somewhat risky 3 No risk 4 Unsure	
F18	Per_inheritforce	In general, do you feel that your plans for land inheritance will be enforced?	1 Yes 2 No 996 Don't know/unsure	
F19	Per_landlaw	How well do you understand the official land laws?	1 Very well 2 Familiar but don't know the details 3 Familiar with some rules but don't know if they are official law 4 Unsure	
F20	Per_CCRO	Have you heard of CCROs?	1 Yes 2 No	If 2 >>>Per_LTA. DO NOT PROMPT IF RESPONDENT HAS NOT HEARD OF CCROs.
F20.1	Per_payCCRO	In general, how much (if anything) would you be willing to pay to have one of your parcels surveyed and to receive a CCRO?		
F21	Per_LTA	Have you heard of LTA?	1 Yes 2 No	If 2 >>> Next section. DO NOT PROMPT IF RESPONDENT HAS NOT HEAR OF LTA!
F21.1	Per_LTAvisit	Did LTA visit your parcel in the past 2 years?	1 Yes 2 No	If 2 >>> Next section
F21.2	Per_LTArec	Which of the following did you receive through LTA?  MARK ALL THAT APPLY	<ul style="list-style-type: none"> <li>• Land was surveyed/ mapped</li> <li>• CCRO</li> <li>• Notarized title</li> <li>• None of the above</li> </ul>	If Per_LTAvisit= yes
F21.3	Per_LTAinfo	Before the LTA process began, did you receive any information about what was going to happen?	1 Yes 2 No	If no >>> Per_LTAtime
F21.4	Per_LTAinfotype	What kind of information? Select all that apply	<ul style="list-style-type: none"> <li>• community meetings with VEO</li> </ul>	

			<ul style="list-style-type: none"> <li>• community meetings with LTA</li> <li>• individually consulted by VEO</li> <li>• Individually consulted by LTA</li> <li>• Other</li> </ul>	
F21.5	Per_LTAuff	Did you feel this information was sufficient for you to understand what was happening and how you could obtain your CCRO?	1 Yes 2 No	
F21.6	Per_LTAmap	Were you present when your parcels were being mapped?	1 Yes 2 No	Only answer if “Land was surveyed/mapped” as part of Per_LTArec
F21.7	Per_LTAmappres	Would you have like to have been present when your parcels were being mapped?	1 Yes 2 No	If Per_LTAmap = no
F21.8	Per_LTAverify	During the verification process, did you feel you were adequately informed about who was claiming rights to what parcel?	1 Yes 2 No	
F21.9	Per_LTAverifypeople	During the verification process, do you think there were there other people in the village who felt that they were not adequately informed about who was claiming what parcel?	1 Yes 2 No	
F21.10	Per_LTAtime	When did LTA visit your parcel?	Month/Year	If Per_LTAvisit = yes
F21.11	Per_LTAmap	When did [Per_LTArec response] take place?	Month/Year	Based on Per_LTArec
F21.12	Per_LTAprocess	How long did the LTA process take?	Enter days	
F21.13	Per_LTAprob	Did you encounter any issues during the LTA process	1 Yes 2 No	If per_LTAvisit = yes If 2 >>> F21.8
F21.14	Per_LTAprobtype	What kind of issues did you encounter?	2. Issue related to existing land dispute 3. Issue related to new dispute caused by mapping 4. Missed deadline 5. Other	If Per_LTAprob = yes
F21.15	Per_CCRO	How much time passed between mapping and receipt of your CCRO?	Enter months	If per_LTArec = CCRO

F2I.16	Per_LTAimpr	What was your impression of LTA?	1 Very positive 2 Somewhat positive 3 Neutral 4 Somewhat negative 5 Very negative	If Per_LTA = yes
F2I.17	Per_docyben	Do you believe that having documentation of your land rights through LTA benefits your household?	1 Yes 2 No 996 Don't know	
F2I.18	Per_LTAcom	What are the benefits to LTA in your village?  ALL THAT APPLY	<ul style="list-style-type: none"> <li>• Protects against losing land</li> <li>• Protects against disputes with neighbors</li> <li>• Makes it easier to rent out</li> <li>• Makes it easier to sell</li> <li>• Will make inheritance easier</li> <li>• Other</li> </ul>	If per_docyben = yes

#### Q. Land disputes

	Name	Question	Response options/units	Notes/instructions
<b><i>This next line of questioning addresses disputes around land in the village. As a reminder, we are not going to share your responses with anyone else in the village or to anyone in the government. Your responses will not affect whether this village receives services or not. We just want to learn more about disputes here.</i></b>				
G1	Dis_dis	In the past six months, has anyone in your household been involved in any dispute or argument about land- for example, about who owns or has rights to a parcel, boundaries of parcels, or inheritance of land?	1 Yes 2 No	If 2 >>> Next section
G1.1	Dis_disnum	How many disputes?	#	
G1.3	Dis_own_j	Does the household currently use the parcel over which the dispute occurred?	1 Yes 2 No	
G1.5	Dis_type_j	What was the dispute related to? Select all that apply.	1 Land that the household owned or was using 2 The household trying to acquire new land	If 8 >>> G1.6 9 >>> G1.7 10 >>> G1.8

			3 Land rented from the household 4 Land rented by the household 5 Inheritance 6 Grazing 7 Other	11 >>> G1.9 12 >>> G1.10 13 >>> G1.11
G1.6	Dis_desc1_j	Which of the following best describes the dispute?	1 Someone who lives in the area tried to take the household's land 2 Someone from outside the area tried to take the household's land 3 Boundary dispute with neighbor 4 Government tried to take the land or stop the household from using it	If dis_type_j = 1
G1.7	Dis_desc2_j	Which of the following best describes the dispute?	1 The household bought/claimed/requested some new land, but someone else claimed to be the owner 2 The household did not buy the land but wanted land that someone else was using 3 None of the above	If dis_type_j = 2
G1.8	Dis_desc3_j	Which of the following best describes the dispute?	1 Payment of rent/crops 2 Length of rental agreement 3 Renter tried to claim ownership 4 Other	If dis_type_j = 3
G1.9	Dis_desc4_j	Which of the following best describes the dispute?	1 Payment of rent/crops 2 Length of rental agreement 3 Disagreement over ownership 4 Other	If dis_type_j = 4
G1.10	Dis_desc5_j	Which of the following best describes the dispute?	1 Disagreement with brothers/sisters over parents' land 2 Widow/widower whose land is being claimed by spouse's relatives 3 Other	If dis_type_j = 5 Need to tailor this one
G1.11	Dis_desc6_j	Which of the following best describes dispute?	1 Disagreement with pastoralists over grazing on land 2 Disagreement with non-pastoralists from the village over grazing on land 3 Disagreement with non-pastoralists from outside	If dis_type_i=6

			the village over grazing on land 3 Other	
G2	Dis_desc7_i	Describe the dispute	Write response	If dis_type_i= 7
G3	Dis_yr_j	In what year did the dispute begin?		
G4		How long did the dispute last?	Months	
G5	Dis_serious_j	Overall, how serious was the dispute?	1 Very serious 2 Somewhat serious 3 Not serious	Guidance: "serious" here means that it disrupted or altered normal life activities.
G6	Dis_mny_j	Did you lose money because of the dispute?	1 Yes, a little (less than TZS 10,000) 2 Yes, a lot (more than TZS 10,000) 3 No	
G7	Dis_safe_j	Did the dispute make you worried about your safety?	1 Yes, a lot 2 Yes, a little 3 No	
G8	Dis_resolved_j	Was the dispute resolved?	1 Yes 2 No	If 2 >>> G9
G8.1	Dis_who_resolved_j	Who resolved the dispute?	1 We resolved it amongst ourselves 2 Others in the community 3 The Village Council 4 District Courts 6 District Officials 14 Village land use committee 8 Ward land use committee 10 Other	If yes to dis_resolved_j Need to tailor
G8.2	Dis_satis_j	How satisfied were you with how the dispute was resolved?	1 Very satisfied 2 Somewhat satisfied 3 Not satisfied	If yes to dis_resolved_j
G9		How likely is it that you will have another dispute like your dispute?	1 Very likely 2 Somewhat likely 3 Not likely 4 Unsure	

#### R. Non-Agricultural Income, Consumption, and Assets

	Name	Question	Response options/units	Notes/instructions
H1	Inc_own	Does your household currently own any of the following items in good working condition: [READ EACH OPTION OUT LOUD AND MARK IF ANSWER "YES" or ' NO'		
H1.1	Inc_own_radio	<ul style="list-style-type: none"> <li>Radio or Radio Cassette</li> </ul>	1 Yes 2 No	
H1.2	Inc_own_mobile	<ul style="list-style-type: none"> <li>Telephone(mobile)</li> </ul>	1 Yes 2 No	
H1.3	Inc_own_sewm	<ul style="list-style-type: none"> <li>Sewing Machine</li> </ul>	1 Yes	

			2 No	
HI.4	Inc_own_tv	<ul style="list-style-type: none"> <li>Television</li> </ul>	1 Yes 2 No	
HI.5	Inc_own_dvd	<ul style="list-style-type: none"> <li>Video / DVD</li> </ul>	1 Yes 2 No	
HI.6	Inc_own_lanterns	<ul style="list-style-type: none"> <li>Lanterns</li> </ul>	1 Yes 2 No	
HI.7	Inc_own_otherstove	<ul style="list-style-type: none"> <li>Stove</li> </ul>	1 Yes 2 No	
HI.8	Inc_own_bicycle	<ul style="list-style-type: none"> <li>Bicycle</li> </ul>	1 Yes 2 No	
HI.9	Inc_own_watches	<ul style="list-style-type: none"> <li>Watches</li> </ul>	1 Yes 2 No	
HI.10	Inc_own_mnets	<ul style="list-style-type: none"> <li>Mosquito net</li> </ul>	1 Yes 2 No	
HI.11	Inc_own_iron	<ul style="list-style-type: none"> <li>Iron (Charcoal or electric)</li> </ul>	1 Yes 2 No	
HI.12	Inc_own_fanair	<ul style="list-style-type: none"> <li>Fan/Air conditioner</li> </ul>	1 Yes 2 No	
HI.13	Inc_own_fields	<ul style="list-style-type: none"> <li>Fields/Land</li> </ul>	1 Yes 2 No	
HI.14	Inc_own_solar	<ul style="list-style-type: none"> <li>Solar panel</li> </ul>	1 Yes 2 No	
HI.15	Inc_own_house	<ul style="list-style-type: none"> <li>Houses/housing addition</li> </ul>	1 Yes 2 No	
HI.16	Inc_own_poultry	<ul style="list-style-type: none"> <li>Poultry</li> </ul>	1 Yes 2 No	
HI.17	Inc_own_livestock	<ul style="list-style-type: none"> <li>Livestock</li> </ul>	1 Yes 2 No	
HI.18	Inc_own_other	<ul style="list-style-type: none"> <li>Other</li> </ul>	1 Yes 2 No	
HI.11	Inc_own_radio_num	<ul style="list-style-type: none"> <li>Radio or Radio Cassette</li> </ul>	Quantity	If inc_own_radio = yes
HI.21	Inc_own_mobile_num	<ul style="list-style-type: none"> <li>Telephone(mobile)</li> </ul>	Quantity	If inc_own_mobile = yes
HI.31	Inc_own_sewm_num	<ul style="list-style-type: none"> <li>Sewing Machine</li> </ul>	Quantity	If own_sewm_num = yes
HI.41	Inc_own_tv_num	<ul style="list-style-type: none"> <li>Television</li> </ul>	Quantity	If inc_own_tv = yes
HI.51	Inc_own_dvd_num	<ul style="list-style-type: none"> <li>Video / DVD</li> </ul>	Quantity	If inc_own_dvd = yes

HI.6I	Inc_own_lanterns_num	<ul style="list-style-type: none"> <li>Lanterns</li> </ul>	Quantity	If inc_own_lanterns=yes
HI.7I	Inc_own_stove_num	<ul style="list-style-type: none"> <li>Stove</li> </ul>	Quantity	If inc_own_stove = yes
HI.8I	Inc_own_bicycle_num	<ul style="list-style-type: none"> <li>Bicycle</li> </ul>	Quantity	If inc_own_bicycle = yes
HI.9I	Inc_own_watches_num	<ul style="list-style-type: none"> <li>Watches</li> </ul>	Quantity	If inc_own_watches = yes
HI.10I	Inc_own_mnets_num	<ul style="list-style-type: none"> <li>Mosquito net</li> </ul>	Quantity	If inc_own_mnets = yes
HI.11I	Inc_own_iron_num	<ul style="list-style-type: none"> <li>Iron (Charcoal or electric)</li> </ul>	Quantity	If inc_own_iron = yes
HI.12I	Inc_own_fanair_num	<ul style="list-style-type: none"> <li>Fan/Air conditioner</li> </ul>	Quantity	If inc_own_fanfair = yes
HI.13I	Inc_own_fields_num	<ul style="list-style-type: none"> <li>Fields/Land</li> </ul>	Quantity	If inc_own_fields = yes
HI.14I	Inc_own_solar_num	<ul style="list-style-type: none"> <li>Solar panel</li> </ul>	Quantity	If inc_own_solar = yes
HI.15I	Inc_own_house_num	<ul style="list-style-type: none"> <li>Houses/housing addition</li> </ul>	Quantity	If inc_own_house = yes
HI.16I	Inc_own_poultry_num	<ul style="list-style-type: none"> <li>Poultry</li> </ul>	Quantity	If inc_own_poultry = yes
HI.17I	Inc_own_livestock_num	<ul style="list-style-type: none"> <li>Livestock</li> </ul>	Quantity	If inc_own_livestock= yes
HI.18I	Inc_own_other_num	<ul style="list-style-type: none"> <li>Other</li> </ul>	Quantity by specified item	If inc_own_other = yes
H2	Inc_own_ani	Which of the following animals are owned by the household?	9. Cows, oxens and bulls 10. Horses, donkeys and mules 11. Pigs 12. Goats 13. Sheep 14. Poultry 15. Other 16. None	
H3	Inc_hwalls	What is the major construction material of the walls of the main dwelling?	7. POLES (INCLUDING BAMBOO), BRANCHES, GRASS)	Enumerator should directly observe to confirm response.

			8. POLES AND MUD/MUD AND STONES 9. MUD ONLY 10. MUD BRICKS 11. BAKED/BURNT BRICKS 12. CONCRETE, CEMENT, STONES 991. OTHER, SPECIFY	
H4	Inc_hroof	What is the major construction material of the main roof?	8. GRASS, LEAVES, BAMBOO 9. MUD AND GRASS 10. CONCRETE, CEMENT 11. METAL SHEETS (GCI) 12. ASBESTOS SHEETS 13. TILES 14. OTHER, SPECIFY	

## A. Agricultural Production

### E.1 Annual Crops

E1.2	Ann_difcrop_i	How many different crops did you grow on your plots?	Enter number	
E1.3	Ann_croprain_i	What crops were grown on during the past rainy season?		Select crops from list.
E1.6	Ann_soil_i	What did you use to till the soil on [PLOT ID]? (Select all that apply)	1 Hand hoe 2 Animal-drawn plows 3 Tractors or other machinery  990 OTHER, specify	
E1.12	Ann_intype_i	What type of input did you utilize during [season] on your plots?  SELECT MULTIPLE	7. Fertilizer 8. Pesticide 9. Herbicide 10. Fungicide 11. Other 12. None	

E1.29	Ann_earn_all	How much did you receive in total from annual crop farm earnings in the last 12 months?	TZ shillings	
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**E.2 Perennial Crops**

E2.1	Pere_crop_num	How many fruit trees and permanent crops do you grow on plots?	Enter number	
E2.1.1	Pere_crops	Please tell me all of the fruit trees and permanent crops that you grow on your plots?		Ask respondent to select from list of fruit and perennial crops. These questions are asked for each fruit and permanent crop.
E2.6	Pere_trees	In the past 12 months, how many non-fruit trees did you plant on any of your plots?	#	
E2.6.1	Pere_treeuse	What do you plan to use these trees for?	5. Wood 6. Timber/Lumber 7. Erosion control 8. Border demarcation 991.Other	If Pere_trees is not 0, if Other record response
E2.11.6	Pere_inc_i	How much did you receive in total from perennial and fruit crop farm earnings in the last 12 months?	TZ shillings	

Crops Codes

<p><b>Cereals/tubers/roots:</b>            Maize.....11            Paddy.....12            Sorghum.....13            Bulrush Millet...14            Finger Millet...15            Wheat.....16            Barley.....17            Cassava.....21            Sweet Potatoes...22            Irish potatoes...23            Yams.....24            Cocoyams.....25            Onions.....26            Ginger.....27</p> <p><b>Legumes, Oil &amp; fruit:</b>            Beans.....31            Cowpeas.....32            Green gram.....33            Chick peas.....35            Bambara nuts.....36            Field peas.....37            Sunflower.....41            Sesame.....42            Groundnut.....43            Soyabeans.....47            Caster seed.....48</p>	<p><b>Fruits:</b>            Passion Fruit...70            Banana.....71            Avocado.....72            Mango.....73            Papaw.....74            Orange.....76            Grapefruit.....77            Grapes.....78            Mandarin.....79            Guava.....80            Plums.....81            Apples.....82            Pears.....83            Peaches.....84            Lime.....851            Lemon.....852            Pomelo.....68            Jack fruit.....69            Durian.....97            Bilimbi.....98            Rambutan.....99            Bread fruit.....67            Malay apple.....38            Star fruit.....39            Custard Apple...200            God Fruit.....201            Mitobo.....202            Plum.....203            Peaches.....204            Pomegranate.....205            Date.....210            Tungamaa.....211            Vanilla.....212</p>	<p><b>Vegetables:</b>            Cabbage.....86            Tomatoes.....87            Spinach.....88            Carrot.....89            Chilies.....90            Amaranths.....91            Pumpkins.....92            Cucumber.....93            Egg Plant.....94            Water Mellon....95            Cauliflower.....96            Okra.....100            Fiwi.....101</p>	<p><b>Cash Crops:</b>            Cotton.....50            Tobacco.....51            Pyrethrum.....52            Jute.....62            Seaweed.....19</p>	<p><b>Permanent Cash crops:</b>            Sisal.....53            Coffee.....54            Tea.....55            Cocoa.....56            Rubber.....57            Wattle.....58            Kapok.....59            sugar Cane.....60            Cardamom .....61            Tamarind.....63            Cinnamon.....64            Nutmeg.....65            Clove.....66            Black Pepper....18            Pigeon pea.....34            Cassava.....21            Pineapple.....75            Palm Oil.....44            Coconut.....45            Cashew nut.....46            Green Tomato....300            Monkeybread....301            Bamboo.....302            Firewood/fodder..303            Timber.....304            Medicinal plant..305            "Fence tree"....306            other.....990</p>
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### S. Household Savings, Borrowing, and Shocks

	Name	Question	Response options/units	Notes/instructions
<i>Thank you. I would like to ask a few questions now about how your household manages expenses.</i>				
11	Fin_credsource	In the past six months, has anyone in your household borrowed money?	1 Yes 2 No	If 2 >>> 13
11.1	Fin_credfrom	Who did they borrow from?	9. COMMERCIAL BANKS 10. MICRO-FINANCE INST 11. VILLAGE COMMUNITY BANK (VICOBA) 12. NEIGHBOURS / FRIENDS 13. FAMILY 14. NGO OR SELF-HELP GROUPS 15. OTHER INFORMAL MONEY LENDER 16. OTHER, SPECIFY	If fin_credsource = yes
12	Fin_amtbrrw	In total, approximately how much has your household borrowed in the past 1.5 years?	TZ shillings	If yes to "has your household borrowed"
13	Fin_wntloan	If you wanted to get a loan of to cover your expenses or buy farm inputs, do you think you or anyone in your household would be able to do that?	1 Yes 2 No 996 Don't know	

### L. Wives/Partners Survey

L11	wives_part	<p>Did you yourself participate in [ACTIVITY] in the past 12 months (that is, during the last [one/two] cropping seasons), from [PRESENT MONTH] last year to [PRESENT MONTH] this year?</p> <p>A) Food crop farming B) Cash crop farming C) Livestock raising D) Non-farm economic activities. E) Wage and Salary employment F) Fishing or fishpond culture G) Major hh expenditures</p>	1 Yes 2 No	If emp_part==No -> skip to next activity. Activity:
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		H) Minor hh expenditures		
L12	wives_decision	When decisions are made regarding [ACTIVITY], who is it that normally takes the decision?	1. Self 2. Spouse 3. Both spouse and self (joint decision making) 4. Other HH member 5. Other Non-HH member 999. N/A	If emp_decision==1, skip to next activity. No response needed if activity==G or H.
L13	Wives_decisionfreq	When decisions are made regarding [ACTIVITY], how often does the decision maker inform you about the decision?	1 Always 2 Sometimes 3 Rarely 4 Never 5 Unsure	If emp_decision != 1 answer this
L14	wives_input	How much input did you have in making decisions about [ACTIVITY] in the past 12 months?	1. No input or input in few decisions, 2. Input into some decisions, 3. Input into most or all decisions, 98. No decision made/Not sure	If emp_input==98, skip to next activity
L15	emp_extent	To what extent do you feel you can make your own personal decisions regarding [ACTIVITY] if you want(ed) to?	1. Not at all, 2. Small extent, 3. Medium Extent, 4. To a high extent.	
L16	emp_use_inc	How much input did you have in decisions on the use of income generated from [ACTIVITY]	1. No input or input in few decisions, 2. Input into some decisions, 3. Input into most or all decisions, 98. No decision made/Not Sure	No response needed if activity==G or H.
L17	Wives_landlaw	Do you know about the national land laws?	1 Yes 2 Yes, but don't know the details 3 No	
L18	Wives_hearing	How confident are you that you would receive a fair hearing if you had a land dispute?	1 Very confident 2 Somewhat confident 3 Unsure 4 Not confident 5 Very unconfident	
L19	Wives_takepos	Do you think it's possible that someone could try to take one of your parcels from you without your permission, say in the next 5 years?	1 Yes 2 No	Enumerator should specify only the parcels in targeted commune if the respondent has parcels in other communes  If 2 >>> L22

L20	Wives_expro	How likely do think it is that someone would try to take one of your parcels from you in the next 5 years?	1 Unlikely 2 Somewhat likely 3 Very likely/it is happening now	If wives_takepos = yes
L21	Wives_reason	Which if any of the following are reasons why you think this could happen? <ul style="list-style-type: none"> <li>• Ongoing or past disputes or expropriation</li> <li>• Lack of documents</li> <li>• Length of agreement (if lease agreement for example)</li> <li>• Problems experienced by others in the community</li> </ul>	1 More important reason 2 Less important reason 3 Not a reason	If per_takepos = yes
L22	Wives_meet	How many group/village meetings have you attended in the past six months?	Enter number	
L22.1	Wive_meet_n	What kind of meetings have you attended?	7. Kitongoji Meetings 8. Village Meetings 9. Farmers' cooperative meetings 10. SACCOS or self-help group meeting 11. School meetings (SMC or parents) 12. Other	If wives_meet !=0
L22.2	Wives_meetfreq_n	How many times did you attend [MEETING]?	Enter number	
L22.3	Wives_speak	How many of those meetings have you spoken to the group?	Enter number	
L22.4	Wives_speakfreq	How many times did you speak at [MEETING]?	Enter number	If wives_speak != 0
L23	Wives_comfort	Do you feel comfortable speaking at village meetings or in group settings?	1 Yes 2 No	
L24	Wives_wgroup	Are there women's groups in the village or surrounding area?	1 Yes 2 No	If yes, continue If 2 >>> L26
L25	Wives_wattend	How many women's group meetings have you attended?	Enter number	If >0, continue
L25.1	Wive_totattend	How many women would you estimate were at the meeting?	Enter number	If many meetings (>10) were attended, this should refer to average.
L26	Wives_Lan_dcd_i	Who primarily decides how to use this household's parcel(s)?	1=Self 2 =Spouse 3=Both self and spouse together 4=Other male household member 5=Other female household member	

			990=Other, specify	
L27	Wives_Lan_inco_i	Who decides how to use any income generated from the use of this household's parcel(s)?	1=Self 2=Spouse 3=Both self and spouse together 4=Other male household member 5=Other female household member 990=Other, specify	
<b>Next I'd like to ask about your household's experience with borrowing money or other items in the past 12 months.</b>				
L28	Wives_loan	Over the past 12 months, did you or anyone else in this household borrow from someone outside the household or from an institution receiving either cash, goods, or services?	1 Yes 2 No	If 2 >>> L29
L28.1	Wive_loan_source	What was the source of the loan(s)?	8 COMMERCIAL BANKS 9 MICRO-FINANCE INST 10 VILLAGE COMMUNITY BANK (VICOBA) 11 NEIGHBOURS / FRIENDS 12 FAMILY 13 NGO OR SELF-HELP GROUPS 14 OTHER INFORMAL MONEY LENDER 991 OTHER, SPECIFY	Select all that apply
L28.2	Wives_loan_dec	Who made the decision to borrow from [SOURCE] most of the time?	6 SELF 7 SPOUSE 8 Both spouse and self (joint decision making) 9 OTHER HH MEMBER 10 OTHER NON-HH MEMBER 1000 NOT APPLICABLE	Select all that apply
L28.3	Wives_loan_decuse	Who makes the decision about what to do with the money/ item borrowed from [SOURCE] most of the time?	5 SELF 6 SPOUSE 7 Both spouse and self 8 OTHER HH MEMBER OTHER NON-HH MEMBER999 NOT APPLICABLE	Select all that apply
L28.4	Wives_loan_use	What did you use this loan/credit for?	10 SUBSISTENCE NEEDS 11 MEDICAL COST 12 SCHOOL FEES 13 CEREMONY/WEDDING	

			14 PURCHASE LAND 15 PURCHASE AGRIC. INPUTS 16 OTHER BUSINESS INPUTS 17 PURCHASE AGRIC. MACHINERY 18 BUY/BUILD DWELLING 99I OTHER(SPECIFY)	
L29	Wives_Lan_doc_i	Do you or your household have any kind of documentation of your rights to your HH's parcels?	1 Yes 2 No	If 2 >>> L3I
L29.1	Wives_Lan_typedoc_i	What kind of documentation? SELECT ALL THAT APPLY	6. GRANTED RIGHT OF OCCUPANCY 7. CERTIFICATE OF CUSTOMARY RIGHT OF OCCUPANCY 8. INHERITANCE LETTER 9. OTHER GOVERNMENT DOCUMENT 10. OTHER DOCUMENT OR LETTER (NON-GOVERNMENT/UNOFFICIAL)	If land_doc_i=yes next question
L29.2	Wives_Lan_docobtain_i	When did you obtain the documentation?	Year/Month	If wives_land_doc_i=yes next question
L29.3	Wives_Lan_docobtain_i	How many people have ownership rights under this documentation?		Enter number
L41	Wives_CCRO	Have you heard of CCROs?	1 Yes 2 No	If 2 >>>Wives_LTA
L41.1	Wives_payCCRO	In general, how much (if anything) would you be willing to pay to have one of your parcels surveyed and to receive a CCRO?		Enter amount in TShs.
L42	Wives_LTA	Have you heard of [LTA]?	1 Yes 2 No	If 2 >>> Next section. DO NOT PROMPT IF RESPONDENT HAS NOT HEARD OF LTA.
L42.1	Wives_LTArec	Which of the following did you receive through LTA?	<ul style="list-style-type: none"> <li>• Land was surveyed</li> <li>• CCRO</li> <li>• Notarized title</li> <li>• None of the above</li> </ul>	If Wives_LTA= yes

L42.2	Wives_LTAimpr	What was your impression of LTA?	1 Very positive 2 Somewhat positive 3 Neutral 4 Somewhat negative 5 Very negative	If Wives_LTA = yes
L42.3	Wives_docyben	Do you believe that having documentation of your land rights through LTA benefits your household?	1 Yes 2 No	
L42.4	Wives_LTAcom	Do you think LTA has benefited your community in any of the following ways: <ul style="list-style-type: none"> <li>• Protects against losing land</li> <li>• Protects against disputes with neighbors</li> <li>• Makes it easier to rent out</li> <li>• Makes it easier to sell</li> <li>• Will make inheritance easier</li> <li>• Other</li> </ul> <p>SELECT ALL THAT APPLY</p>	3. YES 4. NO	If Wives_docyben = yes

# **ANNEX E: DRAFT ENDLINE SURVEY INSTRUMENT**

## A. Introduction and Consent

Greetings! My name is \_\_\_\_\_. I am from XXX and is currently undertaking a survey on behalf of MSI/NORC, a contractor with the United States Agency for International Development, in conjunction with the Iringa District Land Office to learn more about villagers in this district.

We are currently visiting villages in Iringa to gain a better understanding of village land use, administration, and the local community. The answers from this questionnaire will be used to learn more about land-use and life in the village.

I will not tell anyone about your answers to these questions. Only the research team will view your responses. Although we will ask for information about this village and your experience here, we will never use personal information in our documentation and will not report sensitive village information to anyone. This survey does not mean that a project or NGO will come to this village, and your answers will not affect whether any future projects come to this village. The entire survey will take about 1 hour.

If you have any questions in the future, you can contact **MSI** via phone at **+255 676 788 364** or **+255 719 147 083**

Are you willing to proceed with the interview?

3. Yes .... >>> **(Tick category of hhd respondent and proceed as appropriate)**
4. No .... >>> **(Tick respondent category and Terminate interview)**

Category of household respondent

1. Male household head >>> **Section B {Should answer the full survey, EXCEPT Section L}**
2. Female household head >>> **Section B {Should answer the full survey, EXCEPT Section L}**
3. **Wives** (should be given to the primary spouse of Male HH heads and implemented simultaneously to the male HH head survey) >>> **Section L**

## ADMINISTRATIVE INFORMATION

<b>Household number</b>			
<b>Date of interview:</b>	<b>DD</b>	<b>MM</b>	<b>YY</b>
<b>Time of interview:</b> <i>(24 hour clock)</i>	<b>Start</b>	<b>HH</b>	<b>MM</b>
			<b>Stop</b>
		<b>HH</b>	<b>MM</b>
<b>Name of interviewer:</b>			
<b>Code of interviewer</b>			
<b>Place of interview:</b>			
<b>Ward</b>			
<b>Village</b>			
<b>Point of interview</b>	<b>4. Respondent's residence</b> <b>5. In one of the household's parcel of land</b> <b>6. Away from respondent's place of residence and/or parcel of land</b>		
<b>GPS Coordinates</b>			
<b>Number of visits</b> <i>(max. of 3)</i>			
<b>Reason for call back</b>	<b>Number of visits</b>		
	<b>1</b>	<b>2</b>	<b>3</b>
Refused to be interviewed		1	1
Target respondent not at home		2	2
Target respondent requested for a call back			
No one in the household		3	3
Respondent not able to be interviewed due to medical reasons (very sick, dumb, etc.)		4	4
No adult member in the household		5	5
Language barrier		6	6
Not applicable		99	99
<b>Outcome of final visit</b>	<b>Successful</b>	<b>Incomplete</b>	<b>Replaced</b>

<b>Field quality control checks</b> <i>(sign as appropriate)</i>		
<b>Activity</b>	<b>Activity undertaken by</b>	
	<b>Interviewer</b>	<b>Supervisor</b>
<b>Reviewed</b>		
<b>Accompanied</b>		

Back checked		
Called back		

Enumerator: confirm that the household participated in previous survey rounds.				
A1	survey_round	Have you been interviewed in the past two years as part of a survey?	1 Yes 2 No	
A1.1	survey_date	Around when were you interviewed?	Month/Year	If A1==yes
A1.2	survey_round_n	How many times were you previously interviewed?	Enter number	if A1==yes
A1.3	survey_hh	Do you know what happened to the previous household who lived in this location?	1 Moved elsewhere in the village 2 Moved to another village 3 Family members died 4 Don't know 5 Other (Specify) _____	If A1==no
A2	replacement	Enumerator: is this a replacement household?	1 Yes 2 No	If A1==no. Do not ask, this is for internal tracking.

## B. HH Roster info

I would like to start this interview with a few questions about your household members.

B1	Hou_role	Are you the household head?	1 Yes 2 No	
B1.1	Hou_gender	What is the respondent's gender?	1 Male 2 Female	
B1.2	hou_num_n	How many members, including yourself, constitute this household?	Enter number of household members	
B1.3	hou_gender_n	How many household members are female?	Enter number	
B1.4	hou_age	How many household members are below the age of 15?	Enter number	
B1.3	hou_nme	Can you tell me the name of all the members of this household?		RECORD THE HOUSEHOLD MEMBERS BEGINNING WITH THE HOUSEHOLD HEAD, FOLLOWED BY THE SPOUSE AND THEN THE CHILDREN STARTING

				WITH OLDEST FIRST AND CONCLUDING WITH THE YOUNGEST.
B3	hou_gender_n	What is [NAME]'s gender?	1= Male, 2= Female	
B5	hou_age_n	How old is [NAME] in completed years?		Enter age. Enter 996 for Don't Know.

### C. Agricultural Organizations, Services and Training

	Name	Question	Response options/units	Notes/instructions
C3	org_srv	Did you or anyone in your household receive any agricultural extension services in the past 12 months?	5. Yes 6. No 998. Don't know	If 2 >>> C4
C3.1	org_prd	What kind of services were provided?  SELECT ALL THAT APPLY	25. Access to improved seed 26. Fertilizer, pesticides and other chemical inputs 27. Tractor services 28. Marketing services 29. Transport services 30. The opportunity to participate in a value chain scheme 31. Help to form or strengthen farmer groups 32. Contract farming 33. Post-harvest processing of ANY of crops (including drying, sorting, packaging, and/or storing) 34. Purchasing of ANY of the crops 35. Training on agricultural production and/or processing 36. Training on business practices 992. Other, SPECIFY _____	If org_srv = yes, read options.
C3.2	org_used_srv	How often has anyone in your household made use of extension services in the past 12 months?	11 3 times or more 12 Once or twice 13 Never	

C4	org_trnd	In the past 12 months, have you or anyone in your household received any kind of community or organizational assistance related to agriculture, such as assistance from an NGO or community group?	5. Yes 6. No 998. Don't know	If org_trnd != 1 >>> C5 If 2 OR 996 >>> C5
C4.1	org_what	What kind of services were provided?  SELECT ALL THAT APPLY	15. Free food/maize distribution 16. Food-for-work programme or cash-for-work programme 17. Inputs-for work programme 18. Attended a training or workshop 19. Had an agent visit my/our parcel(s) 20. Read a pamphlet 21. Other assistance (not listed above)	
C4.2	org_frequ	For how many days in the past 12 months did you or anyone in your household receive these services?	Enter days	
C5	org_name	Are you aware of these organizations working in your village?  SELECT ALL THAT APPLY	45. One Acre Fund 46. Briten 47. Unicef 48. Eadd 49. Cuamm 50. Clinton Foundation 51. Tahea 52. Camfed 53. Cefa 54. Wopata 55. Jica 56. TIB 57. Concern 58. Tunajali 59. SNV 60. TNRF 61. TCD 62. IMO 63. Cheet 64. Restless Development 65. LEAT 66. Caltas 990. Other (specify): 23 None of these	Select all that apply

#### D. Land Holdings and Characteristics

	Name	Question	Response options/units	Notes/instructions
--	------	----------	------------------------	--------------------

<b>Thank you for the earlier responses. I would now like to ask you a few questions about your land holdings and the parcels you farm.</b>				
D1	Lan_num	How many different parcels does the household own, rent, or use?	Enter number	
D2	Lan_name	Please give each parcel a name so we can keep track during the interview		If lan_num > 1. From here down, ask for each parcel.
D6	Lan_sze_i	What is the size of [PARCEL X]?	Quantity	Unit in Hectares. Parcel X should refer to each parcel, e.g. for the first parcel, say "What is the size of Parcel 1?" for the second, "What is the size of Parcel 2?"
D12	Lan_use_i	During last year's agricultural seasons—both rainy and dry seasons, did your household farm [PARCEL X], leave it fallow, or use it for pasture or some other non-agricultural use?	1 Farmed this parcel 2 Left this parcel fallow 3 Used this parcel as pasture/other non-agricultural use	
D16	Lan_svy_i	Have your parcels ever been mapped by surveyor?	1 Yes 2 No 996 Don't know	
D17	Lan_svytime_i	When was your parcel mapped by surveyor?	Year/Month	Only ask if D16 = Yes
D22	Lan_irr_i	Are your parcels irrigated?	1 Yes 2 No	
D23	Lan_restyn_i	Have you ever left any of your parcels fallow?	1 Yes 2 No	If 2, skip to lan_imp_i
D23.1	Lan_rest_i	What was the most recent year in which you left any of your parcels fallow?		Enter 996 if don't know;
D23.2	Lan_restperct_i	What portion of your parcels were left fallow?	1. One quarter 2. One third 3. Half 4. Two thirds 5. Three quarters 6. Entire parcel	Answer only if lan_restyn_i = 1
D24	Lan_imp_i	For each of the following items I am going to ask about, I want to know if you have made any of the following improvements to any of your parcels in the past two years		
D24.1	Lan_imp_well_i	<ul style="list-style-type: none"> <li>Digging wells or pump irrigation</li> </ul>	1 Yes	

			2 No	
D24.2	Lan_imp_building_i	<ul style="list-style-type: none"> <li>Erecting buildings</li> </ul>	1 Yes 2 No	
D24.3	Lan_imp_fence_i	<ul style="list-style-type: none"> <li>Erecting fencing</li> </ul>	1 Yes 2 No	
D24.4	Lan_imp_terr_i	<ul style="list-style-type: none"> <li>Terracing</li> </ul>	1 Yes 2 No	
D24.5	Lan_imp_soil_i	<ul style="list-style-type: none"> <li>Soil conservation</li> </ul>	1 Yes 2 No	
D25	Lan_doc_i	Do you or your household have any kind of documentation of your rights to any of your parcels?	5. Yes 6. No 998. Don't know	If Lan_doc_i != 2 OR 996 skip to Lan_use_i (D13)
D25.1	Lan_docparcel_i	Which parcels?	Record Parcel IDs	
D25.2	lan_doc_obtain	Was this documentation for parcels you acquired in the past three years?	1 Yes 2 No	
D25.3	lan_doc_when	When did you acquire the parcels?	Month/Year	If D25.2 ==yes
D25.4	Lan_typedoc_i	What kind of documentation?  SELECT ALL THAT APPLY.	11. GRANTED RIGHT OF OCCUPANCY 12. CERTIFICATE OF CUSTOMARY RIGHT OF OCCUPANCY (CCRO) 13. INHERITANCE LETTER 14. OTHER GOVERNMENT DOCUMENT 15. OTHER DOCUMENT OR LETTER (NON-GOVERNMENT/UNOFFICIAL)	
D25.5	lan_typedoc_parcel	Do you have the same kind of documentation for each parcel?	1 Yes 2 No	If more than one is selected for D25.4
D25.6	lan_doc_type	How many parcels are covered by [first document in D25.4]	Enter number	If more than one is selected for D25.4. Repeat question for each document type.
D25.7	Lan_doc_which	Does the documentation apply to all of your parcels?	1 Yes 2 No	
D25.8	Land_doc_n	How many parcels does the documentation cover	enter number	If D25.9 == no
D25.9	Lan_docobtain_i	What year did you obtain the documentation?	Year	If land_doc_i=yes

				next question. 996 if unsure/don't know.
D25.10	Lan_docobtainmon_i	What month did you obtain the documentation?	Month	Enter 996 if unsure/don't know
D25.11	Lan_docnum_i	How many people in household have their names listed on the documentation?		Enter number; If don't know, enter 996
D25.12	Lan_docwho_i	Who in the household is listed as the primary land user on the documentation?	9. Self 10. Spouse 11. Jointly listed (self and spouse) 12. Other 998. Don't know	
D25.13	Lan_docphys_i	Do you have a personal copy of the document?	1 Yes 2 No	If lan_typedoc_i == 2 (ccro) If 2 >>> D12.9
D25.14	Lan_docloc_i	Where do you store a copy of the document?	9. In homestead 10. With a nearby family member 11. At the village center 12. At the DLO/With the government	If lan_typedoc_i == 2 (ccro)
D25.15	Lan_docuse_i	Have you ever had to reference the document?	1 Yes 2 No	If lan_typedoc_i == 2 (ccro) If 2 >>> D13
D25.16	Lan_docusetype_i	Why did you reference the document?  SELECT ALL THAT APPLY.	11. To resolve a dispute 12. To obtain a loan 13. To plan inheritance 14. To prove ownership (not dispute related) 15. As part of a rental agreement 992. Other	Lan_docuse_i == yes
D26	Lan_inherp_i	Do you have an inheritance plan for any of your parcels?	1 Yes 2 No	If no skip to lan_svy_i
D26.1	Lan_inhe_who_i	Have you discussed this plan with anyone?	1 Yes 2 No	If not skip to lan_svy_i
D26.2	Lan_inhe_name	Who have you discussed this with?  SELECT ALL THAT APPLY	1 Wife/Spouse 6 Children 3 Other Family	

			14	Village leaders	
			15	Other	

## E. Agricultural Production

### E.1 Annual Crops

*Now, I am going to ask about some of the annual crops that you grow here.*

E1.2	Ann_difcrop_i	How many different crops did you grow on your plots?	Enter number	
E1.3	Ann_croprain_i	What crops were grown on during the past rainy season?		Select crops from list.
E1.6	Ann_soil_i	What did you use to till the soil on your plots? (Select all that apply)	1 Hand hoe 2 Animal-drawn plows 3 Tractors or other machinery 990 OTHER, specify	
E1.11	Ann_intype_i	What type of input did you utilize during rainy season on your plots?  SELECT ALL THAT APPLY	13. Fertilizer 14. Pesticide 15. Herbicide 16. Fungicide 17. Other 18. None	
E1.12	Ann_intype_i	What type of input did you utilize during dry season on your plots?  SELECT ALL THAT APPLY	1. Fertilizer 2. Pesticide 3. Herbicide 4. Fungicide 5. Other 6. None	
E1.29	Ann_earn_all	How much did you receive in total from annual crop farm earnings in the last 12 months?	TZ shillings	

### E.2 Perennial Crops

E2.1	Pere_crop_num	How many fruit trees and permanent crops do you grow on plots?	Enter number	
E2.1.1	Pere_crops	Please tell me all of the fruit trees and permanent crops that you grow on your plots?		Ask respondent to select from list of fruit and perennial crops. These questions are asked for each fruit and permanent crop.
E2.5	Pere_trees	In the past 12 months, how many non-fruit trees did you plant on any of your plots?	#	Number of trees, not the number of different trees.

E2.5.1	Pere_treeuse	What do you plan to use these trees for?  SELECT ALL THAT APPLY	9. Wood 10. Timber/Lumber 11. Erosion control 12. Border demarcation 992.Other	If Pere_trees is not 0, if Other record response
E2.10.6	Pere_inc_i	How much did you receive in total from perennial and fruit crop farm earnings in the last 12 months?	TZ shillings	

Crops Codes

<b>Cereals/tubers/roots:</b> Maize.....11 Paddy.....12 Sorghum.....13 Bulrush Millet...14 Finger Millet...15 Wheat.....16 Barley.....17 Cassava.....21 Sweet Potatoes...22 Irish potatoes...23 Yams.....24 Cocoyams.....25 Onions.....26 Ginger.....27  <b>Legumes, Oil &amp; fruit:</b> Beans.....31 Cowpeas.....32 Green gram.....33 Chick peas.....35 Bambara nuts.....36 Field peas.....37 Sunflower.....41 Sesame.....42 Groundnut.....43 Soyabeans.....47 Caster seed.....48	<b>Fruits:</b> Passion Fruit....70 Banana.....71 Avocado.....72 Mango.....73 Papaw.....74 Orange.....76 Grapefruit.....77 Grapes.....78 Mandarin.....79 Guava.....80 Plums.....81 Apples.....82 Pears.....83 Peaches.....84 Lime.....851 Lemon.....852 Pomelo.....68 Jack fruit.....69 Durian.....97 Bilimbi.....98 Rambutan.....99 Bread fruit.....67 Malay apple.....38 Star fruit.....39 Custard Apple...200 God Fruit.....201 Mitobo.....202 Plum.....203 Peaches.....204 Pomegranate.....205	<b>Vegetables:</b> Cabbage.....86 Tomatoes.....87 Spinach.....88 Carrot.....89 Chilies.....90 Amaranths.....91 Pumpkins.....92 Cucumber.....93 Egg Plant.....94 Water Mellon....95 Cauliflower.....96 Okra.....100 Fiwi.....101	<b>Cash Crops:</b> Cotton.....50 Tobacco.....51 Pyrethrum.....52 Jute.....62 Seaweed.....19	<b>Permanent Cash crops:</b> Sisal.....53 Coffee.....54 Tea.....55 Cocoa.....56 Rubber.....57 Wattle.....58 Kapok.....59 sugar Cane.....60 Cardamom .....61 Tamarind.....63 Cinnamon.....64 Nutmeg.....65 Clove.....66 Black Pepper....18 Pigeon pea.....34 Cassava.....21 Pineapple.....75 Palm Oil.....44 Coconut.....45 Cashew nut.....46 Green Tomato....300 Monkeybread.....301 Bamboo.....302 Firewood/fodder..303 Timber.....304 Medicinal plant..305 "Fence tree".....306 other.....990
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	Date.....210 Tungamaa.....211 Vanilla.....212			
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#### F. Perceptions of land rights

	Name	Question	Response options/units	Notes/instructions
<p><b>Ok. I would like to ask you about some issues around land in this village. I only want to talk about parcels here (in this village), not things you may have heard in nearby villages (or plots you may have elsewhere).</b></p>				Leave out mention of parcels in other villages if it is not relevant.
F1	Per_takepos	In the next five years, do you think it's possible that someone could try to take one of your parcels from you without your permission?	1 Yes 2 No 996 Don't know	If 2 OR 996 >>> F7
F2	Per_expro	How likely do think it is that someone would try to take one of your parcels from you in the next 5 years?	1 Possible but unlikely 2 Somewhat likely 3 Very likely/it is happening now	If per_takepos = yes
F4	Per_source_i	Who do you think would try to take your parcels?  SELECT ALL THAT APPLY	15. Government 16. Foreign investor 17. Tanzanian investor (from outside the village) 18. Someone inside the village 19. Absentee owner/land claimants 20. Extended family 21. Other	If per_expro != 1
F5	Per_reason	Which if any of the following are reasons why you think this could happen? Please rank from the most important reason to the least important reason 9. Ongoing or past disputes or expropriation 10. Lack of documents 11. Length of agreement (if lease agreement for example) 12. Problems experienced by others in the community	Enter rank order. If one or more options are not relevant, ask for top rank and then determine which seem the least irrelevant of the irrelevant options and work from there.	If per_takepos = yes

F7	Per_comworry	In general, how many people in your community are worried that someone might try to take their land against their will?	1 None or very few 2 Some are worried but most are not 7 Most are worried but not all 8 All or nearly all are worried	
F8	Per_borpos	Do you think it's possible that you could have a dispute over the borders of one of your parcels with a neighbor in the next 5 years?	1 Yes 2 No	If 2 >>> F10
F9	Per_disputeprob	How likely do think it is that you could have a dispute over the borders of one of your parcels with a neighbor in the next 5 years?	1 Possible, but unlikely 2 Somewhat likely 3 Very likely/it is happening now	If per_borpos = yes If 2 or 3 >>> F14
F10	Per_reasonwhy	Which if any of the following are reasons why you don't think this is unlikely? <ul style="list-style-type: none"> <li>• My family has owned/used the parcel for a long time</li> <li>• Lack of problems in the past</li> <li>• Land has been surveyed</li> <li>• HH has documentation of rights</li> <li>• Village Council/Elders/Leaders can easily address potential disputes</li> </ul>	Select all that apply.	If per_takepos = no
F14	Per_future	In the next 12 months, do you expect problems with land disputes will improve, stay the same, or get worse?	1 Improve 2 Stay the same 3 Get worse	
F15	Per_coma	Do you use communal pasture land?	1 Yes 2 No	If 2 >>> F17
F16	Per_coml	Do you think it is possible that you will lose your existing rights on communal pasture land in the next 12 months?	1 Yes 2 No 996 Don't know	Answer if per_coma=Yes If 2 OR 996 >>> F17
F16.1	Per_coml_why	How likely do you think it is that you would lose your existing rights on communal pasture land in the next 12 months?	1 Highly likely 2 Somewhat likely 3 Possible but unlikely	If per_coml = Yes If 3 >>> F17
F16.2	Per_comr	Why do you think you will lose your existing rights on communal pasture land in the future?  SELECT ALL THAT APPLY	1= Local farmers encroaching onto communal land or access routes. 2= Village will decide to allocate the land for other uses.	Answer if per_coml=Yes

			3= The government will allocate the communal land to an investor 990= Other (please specify)	
F17	Per_fallow	How much of a risk is there that someone will take over one of your plots if you leave it fallow?	1 Very high risk 2 Somewhat risky 3 No risk 4 Unsure	
F18	Per_inheritforce	In general, do you feel that your plans for land inheritance will be enforced?	1 Yes 2 No 996 Don't know/unsure	
F19	Per_landlaw	How well do you understand the official land laws?	1 Very well 2 Familiar but don't know the details 3 Familiar with some rules but don't know if they are official law 4 Unsure	
F20	Per_CCRO	Have you heard of CCROs?  DO NOT PROMPT IF RESPONDENT HAS NOT HEARD OF CCROs.	1 Yes 2 No	If 2 >>>Per_LTA. DO NOT PROMPT IF RESPONDENT HAS NOT HEARD OF CCROs.
F20.1	Have_CCRO	Do you have a CCRO for any of your parcels?	1 Yes 2 No	
F20.2	CCRO_cost	Did you have to pay for your CCRO?	1 Yes 2 No	If F20.1 == yes
F20.2	CCRO_costamount	How much did you pay?	Enter amount	If F20.2 == yes
F20.3	CCRO_have_wtp	If you were to obtain a new parcel, how much (if anything) would you be willing to pay to have it surveyed and to receive a CCRO?	Enter amount	if F20.1 == yes
F20.4	Per_payCCRO	In general, how much (if anything) would you be willing to pay to have one of your parcels surveyed and to receive a CCRO?	TShs.	if F20.1 == no
F21	Per_LTA	Have you heard of LTA?  DO NOT PROMPT IF RESPONDENT HAS NOT HEARD OF LTA.	1 Yes 2 No	If 2 >>> Next section. DO NOT PROMPT IF RESPONDENT HAS NOT HEAR OF LTA!
F21.1	Per_LTAvisit	Did LTA visit your parcel in the past 2 years?	1 Yes	If 2 >>> Next section

			2 No	
F21.2	Per_LTArec	Which of the following did you receive through LTA?  SELECT ALL THAT APPLY	<ul style="list-style-type: none"> <li>• Land was surveyed/ mapped</li> <li>• CCRO</li> <li>• Notarized title</li> <li>• Other (specify)</li> </ul>	If Per_LTAvisit= yes
F21.3	Per_LTAinfo	Before the LTA process began, did you receive any information about what was going to happen?	1 Yes 2 No	If no >>> Per_LTAtime
F21.4	Per_LTAinfotype	What kind of information?  SELECT ALL THAT APPLY	<ul style="list-style-type: none"> <li>• community meetings with VEO</li> <li>• community meetings with LTA</li> <li>• individually consulted by VEO</li> <li>• Individually consulted by LTA</li> <li>• Other</li> </ul>	
F21.5	Per_LTAuff	Did you feel this information was sufficient for you to understand what was happening and how you could obtain your CCRO?	1 Yes 2 No	
F21.6	Per_LTAmap	Were you present when your parcels were being mapped?	1 Yes 2 No	Only answer if “Land was surveyed/mapped” as part of Per_LTArec
F21.7	Per_LTAmappres	Would you have like to have been present when your parcels were being mapped?	1 Yes 2 No	If Per_LTAmap = no
F21.8	Per_LTAverify	During the verification process, did you feel you were adequately informed about who was claiming rights to what parcel?	1 Yes 2 No	

F21.9	Per_LTAverifypeople	During the verification process, do you think there were there other people in the village who felt that they were not adequately informed about who was claiming what parcel?	1 Yes 2 No	
F21.10	Per_LTAtime	When did LTA visit your parcel?	Month/Year	If Per_LTAvisit = yes
F21.11	Per_LTAmap	When did [Per_LTArec response] take place?	Month/Year	Based on Per_LTArec
F21.12	Per_LTAprocess	How long did the LTA process take?	Enter days	
F21.13	Per_LTAprob	Did you encounter any issues during the LTA process?	1 Yes 2 No	If per_LTAvisit = yes If 2 >>> F21.8
F21.14	Per_LTAprobtype	What kind of issues did you encounter?  SELECT ALL THAT APPLY	6. Issue related to existing land dispute 7. Issue related to new dispute caused by mapping 8. Missed deadline 9. Other	If Per_LTAprob = yes
F21.15	Per_CCRO	How much time passed between mapping and receipt of your CCRO?	Enter months	If per_LTArec = CCRO
F21.16	Per_LTAimpr	What was your impression of LTA?	1 Very positive 2 Somewhat positive 3 Neutral 4 Somewhat negative 5 Very negative	If Per_LTA = yes
F21.17	Per_docyben	Do you believe that having documentation of your land rights through LTA benefits your household?	1 Yes 2 No 996 Don't know	
F21.18	Per_LTAcom	What are the most important benefits to LTA in your village?  SELECT ALL THAT APPLY	<ul style="list-style-type: none"> <li>• Protects against losing land</li> <li>• Protects against disputes with neighbors</li> <li>• Makes it easier to rent out</li> <li>• Makes it easier to sell</li> <li>• Will make inheritance easier</li> <li>• Other</li> </ul>	If per_docyben = yes

**G. Land disputes**

	Name	Question	Response options/units	Notes/instructions
<b><i>This next line of questioning addresses disputes around land in the village. As a reminder, we are not going to share your responses with anyone else in the village or to anyone in the government. Your responses will not affect whether this village receives services or not. We just want to learn more about disputes here.</i></b>				
G1	Dis_dis	In the past six months, has anyone in your household been involved in any dispute or argument about land- for example, about who owns or has rights to a parcel, boundaries of parcels, or inheritance of land?	1 Yes 2 No	If 2 >>> Next section
G1.1	Dis_disnum	How many disputes?	#	Assign DISPUTE ID for each dispute if there is more than one.
G1.3	Dis_own_j	Does the household currently own or use the parcel over which the [DISPUTE ID] occurred?	1 Yes 2 No	
G1.5	Dis_type_j	What was [DISPUTE ID] related to?  SELECT ALL THAT APPLY	1 Land that the household owned or was using 2 The household trying to acquire new land 3 Land rented from the household 4 Land rented by the household 5 Inheritance 6 Grazing 7 Other	If 15 >>> G1.6 16 >>> G1.7 17 >>> G1.8 18 >>> G1.9 19 >>> G1.10 20 >>> G1.11
G1.6	Dis_desc1_j	Which of the following best describes the [DISPUTE TYPE]?	1 Someone who lives in the area tried to take the household's land 2 Someone from outside the area tried to take the household's land 3 Boundary dispute with neighbor 4 Government tried to take the land or stop the household from using it	If dis_type_j = 1
G1.7	Dis_desc2_j	Which of the following best describes the [DISPUTE TYPE]?	1 The household bought/claimed/requested some new land, but someone else claimed to be the owner 2 The household did not buy the land but wanted land that someone else was using 3 None of the above	If dis_type_j = 2
G1.8	Dis_desc3_j	Which of the following best describes the [DISPUTE TYPE]?	1 Payment of rent/crops	If dis_type_j = 3

			2 Length of rental agreement 3 Renter tried to claim ownership 4 Other	
G1.9	Dis_desc4_j	Which of the following best describes the [DISPUTE TYPE]?	1 Payment of rent/crops 2 Length of rental agreement 3 Disagreement over ownership 4 Other	If dis_type_j = 4
G1.10	Dis_desc5_j	Which of the following best describes the [DISPUTE TYPE]?	1 Disagreement with brothers/sisters over parents' land 2 Widow/widower whose land is being claimed by spouse's relatives 3 Other	If dis_type_j = 5 Need to tailor this one
G1.11	Dis_desc6_j	Which of the following best describes [DISPUTE TYPE]?	1 Disagreement with pastoralists over grazing on land 2 Disagreement with non-pastoralists from the village over grazing on land 3 Disagreement with non-pastoralists from outside the village over grazing on land 3 Other	If dis_type_i=6
G2	Dis_desc7_i	Describe [DISPUTE TYPE]	Write response	If dis_type_i= 7
G3	Dis_yr_j	In what year did the [DISPUTE ID] begin?		
G4		How long did the [DISPUTE ID] last?	Months	
G5	Dis_serious_j	Overall, how serious was the [DISPUTE ID]?	1 Very serious 2 Somewhat serious 3 Not serious	Guidance: "serious" here means that it disrupted or altered normal life activities.
G6	Dis_mny_j	Did you lose money because of the [DISPUTE ID]?	1 Yes, a little (less than TZS 10,000) 2 Yes, a lot (more than TZS 10,000) 3 No	
G7	Dis_safe_j	Did the [DISPUTE ID] make you worried about your safety?	1 Yes, a lot 2 Yes, a little 3 No	
G8	Dis_resolved_j	Was the [DISPUTE ID] resolved?	1 Yes 2 No	If 2 >>> G9

G8.1	Dis_who_resolved_j	Who resolved the [DISPUTE ID]?	1 We resolved it amongst ourselves 2 Others in the community 3 The Village Council 4 District Courts 5 District Officials 6 Village land use committee 7 Ward land use committee 990 Other	If yes to dis_resolved_j Need to tailor
G8.2	Dis_satis_j	How satisfied were you with how the [DISPUTE ID] was resolved?	1 Very satisfied 2 Somewhat satisfied 3 Not satisfied	If yes to dis_resolved_j
G9		How likely is it that you will have another [DISPUTE ID] like your dispute?	1 Very likely 2 Somewhat likely 3 Not likely 4 Unsure	

#### H. Non-Agricultural Income, Consumption, and Assets

	Name	Question	Response options/units	Notes/instructions
HI	Inc_own	Does your household currently own any of the following items in good working condition: [READ EACH OPTION OUT LOUD AND MARK IF ANSWER "YES" or ' NO'		
HI.1	Inc_own_radio	• Radio or Radio Cassette	1 Yes 2 No	
HI.2	Inc_own_mobile	• Telephone(mobile)	1 Yes 2 No	
HI.3	Inc_own_sewm	• Sewing Machine	1 Yes 2 No	
HI.4	Inc_own_tv	• Television	1 Yes 2 No	
HI.5	Inc_own_dvd	• Video / DVD	1 Yes 2 No	
HI.6	Inc_own_lanterns	• Lanterns	1 Yes 2 No	
HI.7	Inc_own_otherstove	• Stove	1 Yes 2 No	
HI.8	Inc_own_bicycle	• Bicycle	1 Yes 2 No	
HI.9	Inc_own_watches	• Watches	1 Yes	

			2 No	
HI.10	Inc_own_mnets	<ul style="list-style-type: none"> <li>Mosquito net</li> </ul>	1 Yes 2 No	
HI.11	Inc_own_iron	<ul style="list-style-type: none"> <li>Iron (Charcoal or electric)</li> </ul>	1 Yes 2 No	
HI.12	Inc_own_fanair	<ul style="list-style-type: none"> <li>Fan/Air conditioner</li> </ul>	1 Yes 2 No	
HI.13	Inc_own_fields	<ul style="list-style-type: none"> <li>Fields/Land</li> </ul>	1 Yes 2 No	
HI.14	Inc_own_solar	<ul style="list-style-type: none"> <li>Solar panel</li> </ul>	1 Yes 2 No	
HI.15	Inc_own_house	<ul style="list-style-type: none"> <li>Houses/housing addition</li> </ul>	1 Yes 2 No	
HI.16	Inc_own_poultry	<ul style="list-style-type: none"> <li>Poultry</li> </ul>	1 Yes 2 No	
HI.17	Inc_own_livestock	<ul style="list-style-type: none"> <li>Livestock</li> </ul>	1 Yes 2 No	
HI.18	Inc_own_other	<ul style="list-style-type: none"> <li>Other</li> </ul>	1 Yes 2 No	
HI.11	Inc_own_radio_num	<ul style="list-style-type: none"> <li>Radio or Radio Cassette</li> </ul>	Quantity	If Inc_own_radio = yes
HI.21	Inc_own_mobile_num	<ul style="list-style-type: none"> <li>Telephone(mobile)</li> </ul>	Quantity	If inc_own_mobile = yes
HI.31	Inc_own_sewm_num	<ul style="list-style-type: none"> <li>Sewing Machine</li> </ul>	Quantity	If own_sewm_num = yes
HI.41	Inc_own_tv_num	<ul style="list-style-type: none"> <li>Television</li> </ul>	Quantity	If inc_own_tv = yes
HI.51	Inc_own_dvd_num	<ul style="list-style-type: none"> <li>Video / DVD</li> </ul>	Quantity	If inc_own_dvd = yes
HI.61	Inc_own_lanterns_num	<ul style="list-style-type: none"> <li>Lanterns</li> </ul>	Quantity	If inc_own_lanterns=yes
HI.71	Inc_own_stove_num	<ul style="list-style-type: none"> <li>Stove</li> </ul>	Quantity	If inc_own_stove = yes
HI.81	Inc_own_bicycle_num	<ul style="list-style-type: none"> <li>Bicycle</li> </ul>	Quantity	If inc_own_bicycle = yes
HI.91	Inc_own_watches_num	<ul style="list-style-type: none"> <li>Watches</li> </ul>	Quantity	If inc_own_watches = yes
HI.101	Inc_own_mnets_num	<ul style="list-style-type: none"> <li>Mosquito net</li> </ul>	Quantity	If inc_own_mnets = yes
HI.111	Inc_own_iron_num	<ul style="list-style-type: none"> <li>Iron (Charcoal or electric)</li> </ul>	Quantity	If inc_own_iron = yes

HI.12I	Inc_own_fanair_num	<ul style="list-style-type: none"> <li>Fan/Air conditioner</li> </ul>	Quantity	If inc_own_fanair = yes
HI.13I	Inc_own_fields_num	<ul style="list-style-type: none"> <li>Fields/Land</li> </ul>	Quantity	If inc_own_fields = yes
HI.14I	Inc_own_solar_num	<ul style="list-style-type: none"> <li>Solar panel</li> </ul>	Quantity	If inc_own_solar = yes
HI.15I	Inc_own_house_num	<ul style="list-style-type: none"> <li>Houses/housing addition</li> </ul>	Quantity	If inc_own_house = yes
HI.16I	Inc_own_poultry_num	<ul style="list-style-type: none"> <li>Poultry</li> </ul>	Quantity	If inc_own_poultry = yes
HI.17I	Inc_own_livestock_num	<ul style="list-style-type: none"> <li>Livestock</li> </ul>	Quantity	If inc_own_livestock = yes
HI.18I		<ul style="list-style-type: none"> <li>Solar Lamp</li> </ul>	Quantity	If inc_own_solar lamp = yes
HI.18I	Inc_own_other_num	<ul style="list-style-type: none"> <li>Other</li> </ul>	Quantity by specified item	If inc_own_other = yes
H2	Inc_own_ani	<p>Which of the following animals are owned by the household?</p> <p>SELECT ALL THAT APPLY</p>	<p>17. Cows, oxens and bulls</p> <p>18. Horses, donkeys and mules</p> <p>19. Pigs</p> <p>20. Goats</p> <p>21. Sheep</p> <p>22. Poultry</p> <p>23. Other</p> <p>24. None</p>	
H3	Inc_hwalls	<p>What is the major construction material of the walls of the main dwelling?</p>	<p>13. POLES (INCLUDING BAMBOO), BRANCHES, GRASS)</p> <p>14. POLES AND MUD/MUD AND STONES</p> <p>15. MUD ONLY</p> <p>16. MUD BRICKS</p> <p>17. BAKED/BURNT BRICKS</p> <p>18. CONCRETE, CEMENT, STONES</p> <p>992. OTHER, SPECIFY</p>	<p>Enumerator should directly observe to confirm response.</p>

H4	Inc_hroof	What is the major construction material of the main roof?	15. GRASS, LEAVES, BAMBOO 16. MUD AND GRASS 17. CONCRETE, CEMENT 18. METAL SHEETS (GCI) 19. ASBESTOS SHEETS 20. TILES 21. OTHER, SPECIFY	
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### I. Household Savings, Borrowing, and Shocks

	Name	Question	Response options/units	Notes/instructions
<i>Thank you. I would like to ask a few questions now about how your household manages expenses.</i>				
11	Fin_credsource	In the past six months, has anyone in your household borrowed money?	1 Yes 2 No	If 2 >>> 13
11.1	Fin_credfrom	Who did they borrow from?  SELECT ALL THAT APPLY	17. COMMERCIAL BANKS 18. MICRO-FINANCE INST 19. VILLAGE COMMUNITY BANK (VICOBA) 20. NEIGHBOURS / FRIENDS 21. FAMILY 22. NGO OR SELF-HELP GROUPS 23. OTHER INFORMAL MONEY LENDER 24. OTHER, SPECIFY	If fin_credsource = yes
11.2	fin_credccro	Did you use or show your CCRO as part of the loan process?	1 Yes 2 No	
12	Fin_amtbrw	In total, approximately how much has your household borrowed in the past 12 months?	TZ shillings	If yes to "has your household borrowed"
13	Fin_wntloan	If you wanted to get a loan to cover your expenses or buy farm inputs, do you think you or anyone in your household would be able to do that?	1 Yes 2 No 996 Don't know	

### J. Food Security

	Name	Question	Response options/units	Notes/instructions
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<b><i>In this next set of questions, I want to ask about your food situation. Thank you.</i></b>				
J1	Fd_season	In the last 12 months, have you been faced with a situation when you did not have enough food to feed the household?	1 Yes 2 No	If 2 >>> J2
J1.1	Fd_seasonday	For how long did you face this situation?	Enter days.	
J2	Fd_worry	During the past 12 months, did you worry that your household would not have enough food?	0 No (it did not happen) 1 Rarely (once or twice) 2 Sometimes (three to ten times) 3 Often (more than 10 times)	
J3	Fd_kinds	During the past 12 months, did it happen that you or someone in your household were not able to eat the <u>kinds of foods you would have preferred</u> to eat because of lack of resources?	0 No (it did not happen) 1 Rarely (once or twice) 2 Sometimes (three to ten times) 3 Often (more than 10 times)	(Note emphasis on KINDS of foods)
J4	Fd_fewml	During the past 12 months, did it happen that you or any other household member had to eat <u>fewer meals in a day</u> because there was not enough food?	0 No (it did not happen) 1 Rarely (once or twice) 2 Sometimes (three to ten times) 3 Often (more than 10 times)	
J5	Fd_nofood	During the past 12 months, did it happen that there was <u>no food to eat of any kind</u> in your house, because of lack of resources to get food?	0 No (it did not happen) 1 Rarely (once or twice) 2 Sometimes (three to ten times) 3 Often (more than 10 times)	
	Fd_bed	During the past 12 months, did it happen that you or any household member <u>went to sleep at night hungry</u> because there was not enough food?	0 No (it did not happen) 1 Rarely (once or twice) 2 Sometimes (three to ten times) 3 Often (more than 10 times)	

#### **L. Wives/Partners Survey**

	<b>Name</b>	<b>Question</b>	<b>Response options/units</b>	<b>Notes/instructions</b>
<b><i>Thank you for agreeing to answer a few of our questions. We are going to start with some questions to record your basic information.</i></b>				
L11	wives_part	Did you yourself participate in [ACTIVITY] in the past 12 months (that is, during the last [one/two] cropping seasons), from [PRESENT MONTH] last year to [PRESENT MONTH] this year?  A) Food crop farming B) Cash crop farming C) Livestock raising D) Non-farm economic activities. E) Wage and Salary employment F) Fishing or fishpond culture	1 Yes 2 No	If emp_part==No -> skip to next activity.

		G) Major hh expenditures H) Minor hh expenditures		
L12	wives_decision	When decisions are made regarding [ACTIVITY], who is it that normally takes the decision?	1. Self 2. Spouse 3. Both spouse and self (joint decision making) 4. Other HH member 5. Other Non-HH member 999. N/A	If emp_decision==1, skip to next activity.  No response needed if activity==G or H.
L13	Wives_decisionfreq	When decisions are made regarding [ACTIVITY], how often does the decision maker inform you about the decision?	1 Always 2 Sometimes 3 Rarely 4 Never 5 Unsure	If emp_decision != 1 answer this
L14	wives_input	How much input did you have in making decisions about [ACTIVITY] in the past 12 months?	1. No input or input in few decisions, 2. Input into some decisions, 3. Input into most or all decisions, 98. No decision made/Not sure	If emp_input==98, skip to next activity
L15	emp_extent	To what extent do you feel you can make your own personal decisions regarding [ACTIVITY] if you want(ed) to?	1. Not at all, 2. Small extent, 3. Medium Extent, 4. To a high extent.	
L16	emp_use_inc	How much input did you have in decisions on the use of income generated from [ACTIVITY]	1. No input or input in few decisions, 2. Input into some decisions, 3. Input into most or all decisions, 98. No decision made/Not Sure	No response needed if activity==G or H.
L18	Wives_hearing	How confident are you that you would receive a fair hearing if you had a land dispute?	1 Very confident 2 Somewhat confident 3 Unsure 4 Not confident 5 Very unconfident	
L19	Wives_takepos	Do you think it's possible that someone could try to take one of your parcels from you without your permission, say in the next 5 years?	1 Yes 2 No	Enumerator should specify only the parcels in targeted commune if the respondent has parcels in other communes

				If 2 >>> L22
L20	Wives_expro	How likely do think it is that someone would try to take one of your parcels from you in the next 5 years?	1 Unlikely 2 Somewhat likely 3 Very likely/it is happening now	If wives_takepos = yes If 1 >>> L22
L21	Wives_reason	Which if any of the following are reasons why you think this could happen? <ul style="list-style-type: none"> <li>• Ongoing or past disputes or expropriation</li> <li>• Lack of documents</li> <li>• Length of agreement (if lease agreement for example)</li> <li>• Problems experienced by others in the community</li> </ul>	1 More important reason 2 Less important reason 3 Not a reason	If per_takepos = yes
L22	Wives_meet	How many group/village meetings have you attended in the past six months?	Enter number	If 0 >>> L23
L22.1	Wive_meet_n	What kind of meetings have you attended?  SELECT ALL THAT APPLY	13. Kitongoji Meetings 14. Village Meetings 15. Farmers' cooperative meetings 16. SACCOS or self-help group meeting 17. School meetings (SMC or parents) 18. Other	
L22.2	Wives_meetfreq_n	How many times did you attend [MEETING]?	Enter number	
L22.3	Wives_speak	In how many of those [MEETING] have you spoken to the group?	Enter number	If 0 >>> L23
L22.4	Wives_speakfreq	Usually, how many times do you speak at [MEETING]?	Enter number	
L23	Wives_comfort	Do you feel comfortable speaking at village meetings or in group settings?	1 Yes 2 No	
L24	Wives_wgroup	Are there women's groups in the village or surrounding area?	1 Yes 2 No	If yes, continue If 2 >>> L26
L25	Wives_wattend	How many women's group meetings have you attended?	Enter number	If >0, continue
L25.1	Wive_totattend	How many women would you estimate were at the meeting?	Enter number	If many meetings (>1) were attended, this should refer to average.

L26	Wives_Lan_dcd_i	Who primarily decides how to use this household's parcel(s)?	1=Self 2 =Spouse 3=Both self and spouse together 4=Other male household member 5=Other female household member 990=Other, specify	
L27	Wives_Lan_inco_i	Who decides how to use any income generated from the use of this household's parcel(s)?	1=Self 2=Spouse 3=Both self and spouse together 4=Other male household member 5=Other female household member 990=Other, specify	
<b>Next I'd like to ask about your household's experience with borrowing money or other items in the past 12 months.</b>				
L28	Wives_loan	Over the past 12 months, did you or anyone else in this household borrow from someone outside the household or from an institution receiving either cash, goods, or services?	1 Yes 2 No	If 2 >>> L29
L28.1	Wive_loan_source	What was the source of the loan(s)?  SELECT ALL THAT APPLY	15 COMMERCIAL BANKS 16 MICRO-FINANCE INST 17 VILLAGE COMMUNITY BANK (VICOBA) 18 NEIGHBOURS / FRIENDS 19 FAMILY 20 NGO OR SELF-HELP GROUPS 21 OTHER INFORMAL MONEY LENDER 992 OTHER, SPECIFY	Select all that apply
L28.2	Wives_loan_dec	Who made the decision to borrow from [SOURCE] most of the time?  SELECT ALL THAT APPLY	11 SELF 12 SPOUSE 13 Both spouse and self (joint decision making) 14 OTHER HH MEMBER 15 OTHER NON-HH MEMBER 1001 NOT APPLICABLE	Select all that apply
L28.3	Wives_loan_decuse	Who makes the decision about what to do with the money/ item borrowed from [SOURCE] most of the time?	9 SELF 10 SPOUSE 11 Both spouse and self 12 OTHER HH MEMBER	Select all that apply

		SELECT ALL THAT APPLY	OTHER NON-HH MEMBER999 NOT APPLICABLE	
L28.4	Wives_loan_use	What did you use this loan/credit for?	19 SUBSISTENCE NEEDS 20 MEDICAL COST 21 SCHOOL FEES 22 CEREMONY/WEDDING 23 PURCHASE LAND 24 PURCHASE AGRIC. INPUTS 25 OTHER BUSINESS INPUTS 26 PURCHASE AGRIC. MACHINERY 27 BUY/BUILD DWELLING 992 OTHER(SPECIFY)	
L29	Wives_Lan_doc_i	Do you or your household have any kind of documentation of your rights to your HH's parcels?	1 Yes 2 No	If 2 >>> L31
L29.1	Wives_Lan_typedoc_i	What kind of documentation? SELECT ALL THAT APPLY	11. GRANTED RIGHT OF OCCUPANCY 12. CERTIFICATE OF CUSTOMARY RIGHT OF OCCUPANCY 13. INHERITANCE LETTER 14. OTHER GOVERNMENT DOCUMENT 15. OTHER DOCUMENT OR LETTER (NON-GOVERNMENT/UNOFFICIAL)	If land_doc_i=yes next question
L29.2	Wives_Lan_docobtain_i	When did you obtain the documentation?	Year/Month	If wives_land_doc_i=yes next question
L29.3	Wives_Lan_docobtain_i	How many people have ownership rights under this documentation?		Enter number
L40	Per_landlaw	How well do you understand the official land laws?	1 Very well 2 Familiar but don't know the details	

			3 Familiar with some rules but don't know if they are official law 4 Unsure	
L41	Wives_CCRO	Have you heard of CCROs? DO NOT PROMPT IF RESPONDENT HAS NOT HEARD OF CCROs.	1 Yes 2 No	If 2 >>>Wives_LTA
L41.1	Wives_Have_CCRO	Do you have a CCRO for any of your parcels?	1 Yes 2 No	
L41.2	Wives_CCRO_cost	Did you have to pay for your CCRO?	1 Yes 2 No	If L41.1 == yes
L41.3	Wives_CCRO_costamount	How much did you pay?	Enter amount	If L41.2 == yes
L40.4	Wives_CCRO_have_wtp	If you were to obtain a new parcel, how much (if anything) would you be willing to pay to have it surveyed and to receive a CCRO?	Enter amount	if L41.1 == yes
L40.5	Wives_Per_payCCRO	In general, how much (if anything) would you be willing to pay to have one of your parcels surveyed and to receive a CCRO?	TShs.	if L41.1 == no
L41.6	Wives_payCCRO	In general, how much (if anything) would you be willing to pay to have one of your parcels surveyed and to receive a CCRO?		Enter amount in TShs.
L42	Wives_LTA	Have you heard of LTA?  DO NOT PROMPT IF RESPONDENT HAS NOT HEARD OF LTA.	1 Yes 2 No	If 2 >>> Next section. DO NOT PROMPT IF RESPONDENT HAS NOT HEARD OF LTA.
L42.1	Wives_LTArec	Which of the following did you receive through LTA?  SELECT ALL THAT APPLY	<ul style="list-style-type: none"> <li>• Land was surveyed</li> <li>• CCRO</li> <li>• Notarized title</li> <li>• Other (specify)</li> </ul>	If Wives_LTA= yes
L42.2	Wives_LTAimpr	What was your impression of LTA?	1 Very positive 2 Somewhat positive 3 Neutral 4 Somewhat negative 5 Very negative	If Wives_LTA = yes
L42.3	Wives_docyben	Do you believe that having documentation of your land rights through LTA benefits your household?	1 Yes 2 No 996 Don't know	
L42.4	Wives_LTAcom	Do you think LTA has benefited your community in any of the following ways:	5. YES 6. NO	If Wives_docyben = yes

		<ul style="list-style-type: none"><li>• Protects against losing land</li><li>• Protects against disputes with neighbors</li><li>• Makes it easier to rent out</li><li>• Makes it easier to sell</li><li>• Will make inheritance easier</li><li>• Other</li></ul> <p>SELECT ALL THAT APPLY</p>		
--	--	---	--	--

If budget is available, include this:

**A. Land Holdings and Characteristics**

	<b>Name</b>	<b>Question</b>	<b>Response options/units</b>		<b>Notes/instructions</b>
<i>Thank you for the earlier responses. I would now like to ask you a few questions about your land holdings and the parcels you farm.</i>					
D1	Lan_num	How many different parcels does the household own, rent, or use?	Enter number		
D2	Lan_name	Please give each parcel a name so we can keep track during the interview			If lan_num > 1. From here down, ask for each parcel.
D3	Lan_boun	Is [PARCEL ID] inside the village boundary?	1= Yes 2 = No		
D4	Lan_cent	Is [PARCEL ID] near the village center	1= Yes 2 = No		
D5	Lan_home	Is [PARCEL ID] near your homestead your homestead?	1= Yes 2 = No		
D6	Lan_size_i	What is the size of [PARCEL ID]?	Quantity	Unit	Record local units/quantity.
D7	Lan_dist_i	How long does it take to get from your house to [PARCEL ID] on foot?			Record in minutes.
D8	Land_diffcom_i	Is [PARCEL ID] in a different village from the one you live in?	4. Yes 5. No 6. Don't know		
D9	Land_diffcomvi_i	What is the name of the village where [PARCEL ID] is?	Enter village name		If Land_diffcom_i = 1
D10	Lan_right_i	What is the ownership status of [PARCEL ID]?	6. Owned <b>by the household</b> 7. Used <b>by the household</b> free of charge 8. Rented <b>by the household</b> 9. Rented <b>by the household together with other people</b>		If 3 OR 4 >>> D13

			<b>10. Owned by the household together with other people</b>	
D11	Lan_othrent_i	Does someone else rent [PARCEL ID] from you?	3. Yes 4. No	
D12	Lan_use_i	During last year's agricultural seasons, did your household farm [PARCEL ID], leave it fallow, or use it for pasture or some other non-agricultural use?	1 Farmed this parcel 2 Left this parcel fallow 3 Used this parcel as pasture/other non-agricultural use	
D13	Lan_mth_i	What was the method by which [PARCEL ID] was acquired/claimed by your household?	1) Bought it 2) Inherited 3) Started renting/sharecropping 4) Cleared it 5) Distributed by village 6) Received as gift 7) Occupied	Context
D14	Lan_yr_i	What year did your household acquire [PARCEL ID]?		Enter 996 if don't know
D15	Lan_dcd_i	Who primarily decides how to use [PARCEL ID]?	1=Self 2=Spouse 3=Both self and spouse together 4=Other male household member 5=Other female household member 990=Other, specify	
D16	Lan_svy_i	Has [PARCEL ID] ever been mapped by surveyor?	1 Yes 2 No 996 Don't know	If 2 OR 996 >>> D21
D17	Lan_yrsvy_i	What year was [PARCEL ID] mapped by surveyor?	Year	If lan_svy_i = yes 99 if unsure/don't know. Skip to next section unless land_use_i = 1 Enter 996 if don't know
D18	Lan_mnsvy_i	What month was [PARCEL ID] mapped by surveyor?	Month	Enter 996 if don't know
D19	Lan_top_i	What is the topography of [PARCEL ID]?	1 Plain 2 Valley 3 Mountain top 4 Mountain side	

			5 Hill 6 Other	
D20	Lan_soiltyp_i	What is the primary soil type of [PARCEL ID]?	(1)Clay (2)Sandy (3)Loam (4)Other (996)Don't know	
D21	Lan_slp_i	Overall, what is the slope of [PARCEL ID]?	(1) Flat bottom (2) Flat top (3) Slightly sloped (4) Very Steep	
D22	Lan_irr_i	Is [PARCEL ID] irrigated?	1 Yes 2 No 996 Don't know	
D23	Lan_restyn_i	Have you ever left [PARCEL ID] fallow?	1 Yes 2 No	If 2, skip to lan_imp_i
D23.1	Lan_rest_i	What was the most recent year in which [PARCEL ID] was left fallow?		Enter 996 if don't know;
D23.2	Lan_restperct_i	What portion of [PARCEL ID] was left fallow?	Enter percentage	Answer only if lan_restyn_i = 1
D24	Lan_imp_i	For each of the following items I am going to ask about, I want to know if you have made any of the following improvements to this parcel, either in the past year or before that?		
D24.1	Lan_imp_well_i	<ul style="list-style-type: none"> <li>Digging wells or pump irrigation</li> </ul>	1 In the past year 2 Before the past year 3 Both in the past year and before 4 No	
D24.2	Lan_imp_building_i	<ul style="list-style-type: none"> <li>Erecting buildings</li> </ul>	1 In the past year 2 Before the past year 3 Both in the past year and before 4 No	
D24.3	Lan_imp_fence_i	Erecting fencing	1 In the past year 2 Before the past year 3 Both in the past year and before 4 No	
D24.4	Lan_imp_terr_i	<ul style="list-style-type: none"> <li>Terracing</li> </ul>	1 In the past year 2 Before the past year 3 Both in the past year and before 4 No	

D24.5	Lan_imp_soil_i	<ul style="list-style-type: none"> <li>Soil conservation</li> </ul>	1 In the past year 2 Before the past year 3 Both in the past year and before 4 No	
D25	Lan_doc_i	Do you or your household have any kind of documentation of your rights to any of your parcels?	7. Yes 8. No 999. Don't know	If Lan_doc_i != 2 OR 996 skip to Lan_use_i (D13)
D25.1	Lan_docparcel_i	Which parcels?	Record Parcel IDs	
D25.2	Lan_typedoc_i	What kind of documentation? SELECT ALL THAT APPLY.	16. GRANTED RIGHT OF OCCUPANCY 17. CERTIFICATE OF CUSTOMARY RIGHT OF OCCUPANCY (CCRO) 18. INHERITANCE LETTER 19. OTHER GOVERNMENT DOCUMENT 20. OTHER DOCUMENT OR LETTER (NON-GOVERNMENT/UNOFFICIAL)	
D25.3	Lan_docobtain_i	What year did you obtain the documentation for [PARCEL ID]?	Year	If land_doc_i=yes next question. 996 if unsure/don't know.
D25.4	Lan_docobtainmon_i	What month did you obtain the documentation for [PARCEL ID]?	Month	Enter 996 if unsure/don't know
D25.5	Lan_docnum_i	How many people in household have their names listed on the documentation you have for [PARCEL ID]?		Enter number; If don't know, enter 996
D25.6	Lan_docwho_i	Who in the household is listed as the primary land user on the documentation for [PARCEL ID]?	13. Self 14. Spouse 15. Jointly listed (self/spouse) 16. Other (Specify) 999. Don't know	Refer to HH roster
D25.7	Lan_docphys_i	Do you have a personal copy of the document?	1 Yes 2 No	If lan_typedoc_i == 2 (ccro) If 2 >>> D12.9
D25.8	Lan_docloc_i	Where do you store a copy of the document?	13. In homestead 14. With a nearby family member 15. At the village center	If lan_typedoc_i == 2 (ccro)

			16. At the DLO/With the government	
D25.9	Lan_docuse_i	Have you ever had to reference the document?	1 Yes 2 No	If lan_typedoc_i == 2 (ccro) If 2 >>> D13
D25.10	Lan_docusetype_i	Why did you reference the document?	16. To resolve a dispute 17. To obtain a loan 18. To plan inheritance 19. To prove ownership (not dispute related) 20. As part of a rental agreement 993.Other	Lan_docuse_i == yes

## ANNEX F: POWER CALCULATION DETAILS

The power calculations under the selected estimation method required a number of assumptions about parameters and estimation methods that will be described below.

$\alpha$  is the significance level of the test, or probability of Type I error. The evaluation team uses the standard value of 0.05, which corresponds to a 95 percent chance of avoiding a false positive in the event that there is no impact.

$\beta$  is the power of test, where  $(1-\beta)$  is the probability of Type II error. Type II errors occur when the activity has an impact on the outcome variable, but the evaluation is not able to detect the impact. Power equal to 0.8 is a common choice of  $\beta$  that appears in the literature. In our case, the evaluation team calculates  $\beta$  using simulations.

MDES is usually denoted as  $\delta$ . The MDES is the smallest impact of the activity on the outcome variable that the evaluation will be able to detect. The MDES is an important parameter in power calculations, as the choice of its value can have a substantial impact on the required sample size. Ideally, the value of the MDES is chosen based on previous studies that have considered the impact of similar interventions on the same outcome variables. However, in this case there is not a sufficient amount of prior rigorous empirical work to select an MDES, so the simulation method allows us (?) to vary this parameter. An MDES range from 0.1 to 0.5 in intervals of 0.05 was tested during the simulation.

The next set of parameters are related to the outcome measure. For this analysis, the evaluation team assumed that the outcome measure  $Y$  is continuous, a standard deviation ( $\sigma$ ) of 1, its initial value is 0, has a time trend increase of 0.02 per time period. Given the roll-out treatment design of this IE, the evaluation team has a fixed number of periods set at 3.

For this simulation, the evaluation team set the number of clusters ( $k$ ) in 60, and the number of observations ( $m$ ) in 25. The team also set the seed for the random generation of distributions as 2016 for future replications of this exercise. Given the nature of the exercise, the team also limited the number of iterations to 500.

The ICC is a measure of correlation of the outcome variable within the different clusters. This parameter is usually denoted as  $\rho$ . This is a key parameter as it plays an important role in sample size calculations. For this reason, the evaluation team did the estimation for ICC values of 0.01, 0.05, 0.1, and 0.15 in order to provide a sense of how the power will vary as this parameter changes.

In addition to the ICC, there are two correlations that need to be accounted for to reflect the correlation of outcome variables over time, or autocorrelation. These include autocorrelation at both the cluster level ( $\rho_c$ ) and at the individual level ( $\rho_p$ ). To obtain examples of values for these parameters, the evaluation team calculated using data from the World Bank's Living Standards Measurement Surveys in Uganda, with total value of agricultural production as the outcome variable. On this basis, the team set  $\rho_c$  at 0.57, and  $\rho_p$  at 0.12.

The last feature of the simulation includes the treatment variables and the selection of the estimation method. Thus, each dataset includes a total of 60 villages with 25 observations per village, and data at three time periods as follows:

- Period 1: baseline observations from 15 treatment and 15 control villages
- Period 2: follow-up observations from the 15 treatment and 15 control villages from period 1, and baseline observations from an additional 15 treatment and 15 control villages.
- Period 3: follow-up observations from all 60 villages.

The evaluation team selected a fixed effects estimation with time fixed effects with clustered standard errors. The power calculation is then the number of times that the effect is statistically significant throughout the simulations.

As shown in the main body of this report, Table 5 shows the required effect sizes for each ICC, or how much variation there is within each cluster (i.e., village); a low ICC, such as 0.01, suggests that households are relatively different from each other, while a higher ICC, such as 0.20, suggests that households are relatively similar to each other. Table 5 shows that the evaluation would be sufficiently powered with an MDES of 0.25 ( $0.8184 > 0.8$ ), but underpowered for a MDES of 0.2 ( $0.6627 < 0.8$ ). The cells highlighted in blue show the MDES and ICCs required to achieve sufficient statistical power. An effect size of 0.25 or higher is reasonable given the outcomes of interest for the LTA activity, but may not be sufficient for tertiary outcomes with higher ICCs, such as outcomes related to what farmers grow (since most farmers likely grow similar crops resulting in a higher ICC).

**TABLE 5: STATISTICAL POWER BY EFFECT SIZE AND ICC**

		Minimum Detectable Effect Size				
		0.10	0.15	0.20	0.25	0.3
ICC	0.01	0.3912	0.7126	0.8842	0.9800	1.0000
	0.05	0.3014	0.5629	0.7605	0.9222	0.9840
	0.10	0.2395	0.4451	0.6627	0.8184	0.9441
	0.15	0.1956	0.3513	0.5669	0.7725	0.8922

# ANNEX G: PHASE II OPTIONS MEMO

The following memo was presented to USAID in August 2017 to summarize the potential effects of changing the implementation timeline.

## **Options Memorandum: Impact Evaluation of the Land Tenure Assistance Activity in Tanzania**

This memorandum was prepared at the request of the Office of Land and Urban in USAID's Bureau for Economic Growth, Education, and Environment (E3/LU). It summarizes two options for E3/LU's consideration for moving forward with the ongoing impact evaluation (IE) of the Feed the Future Tanzania Land Tenure Assistance (LTA) activity, given recent unanticipated changes in LTA activity implementation that present significant challenges for completing the IE as planned. The E3 Analytics and Evaluation Project ("the Project") is implementing the IE.

This memorandum begins with an overview of the LTA implementation changes, then summarizes the original IE design and timeline, the key methodological challenges created by the LTA implementation changes, the two options for proceeding with the IE given the LTA implementation changes, and updated estimated budget information for the IE. These two options are:

- **Option 1:** Adhere to the original, approved IE design but have all remaining IE activities occur six months earlier than planned, and take steps to ensure that the IE sample includes a full roster of villages as per the approved design.
- **Option 2:** Proceed with six-month accelerated IE timeline as in Option 1, but with a reduced sample of villages.

### **LTA Implementation Changes**

On August 9<sup>th</sup>, USAID informed the Project team of two significant and unexpected changes in activity implementation based on recent decisions the implementation team had taken.

First, LTA intends to have implementation in its next set of target villages occur approximately five months earlier than previously discussed with the Project team. The change in the LTA timeline is being proposed after the Project team completed the first round of IE baseline data collection and analysis, and despite known challenges that such changes create for the IE, which the Project team has repeatedly stressed in conversations with the LTA implementation team over the past year.

Second, LTA and the Iringa District Land Office (DLO) have ruled out 8 of the remaining villages in the master list used to determine the IE sample, leaving 27 villages – which is below the minimum threshold that the IE design requires.

### **The Approved Timeline and Evaluation Design**

The Project team's approved IE design, developed in coordination with USAID and LTA in 2016, is based on a cluster randomized controlled trial approach that has IE data collection taking place prior to LTA implementation in two phases, as shown in Table I.

**Table 2: Approved Two-Phase IE Design and LTA Implementation Schedule**

Phase	Implementation Year	Control	Treatment
1	2017-2018	15 randomly chosen villages do not receive LTA	15 randomly chosen villages receive LTA
2	2018-2019	15 randomly chosen villages do not receive LTA	15 randomly chosen villages receive LTA

The Project team completed Phase I baseline data collection in April 2017, randomly selecting 30 villages (and 2 buffer villages) from a list of 78 villages approved by LTA and the Iringa DLO. LTA, with input from the Iringa DLO, subsequently removed several villages from this list of 78 due to the potential challenges to LTA implementation, leaving 36 villages available for random assignment in Phase II. Per the approved IE design, Phase II baseline data collection – which also includes midline data collection for the Phase I households – was planned for March-April 2018, approximately one-year after the Phase I baseline.

LTA's decision to accelerate activity implementation would require that IE data collection for Phase 2 occur around late October 2017.

### Methodological Considerations for the Options

One of the most important contributions of this IE is its rigorous design, since there have been few experimental studies on the impact of land formalization to date. Thus, the Project team sought to develop options in response to these LTA implementation changes that would preserve as much of the IE's rigor as possible. Three methodological considerations need to be kept in mind for each of the options presented:

- **Data Collection Timing:** All IE baseline data collection in Phase II villages must occur prior to LTA implementation activities in those villages, regardless of the timeline for implementation. Otherwise, the IE will not be able to estimate LTA's impact because it could not convincingly show that treatment villages would have been similar to the control villages had they not received the activity. Also, the Project team learned during Phase I baseline data collection that LTA started sensitization activities in two treatment villages prior to the IE baseline being conducted there. Going forward, it is critical that no additional implementation activities that involve LTA staff interacting with treatment villages take place before IE baseline data collection is completed.
- **Ability to Detect an Effect:** The IE design uses a panel survey, with respondents interviewed at the same time of year before, during, and after LTA implementation to rigorously estimate LTA's impact and compare it to villagers in the control group. The requirements to survey households at the same time of year and to conduct a midline survey of Phase I households are critical for the statistical power of the IE (i.e., its ability to detect an effect where one occurred). Changing the timeline for baseline data collection, and potentially reducing the number of villages included in the IE, would dramatically reduce the rigor of the IE design and increase the likelihood that the evaluation will not be able to detect any impact of the LTA interventions. While the IE can attempt to address the timeline change through statistical weighting and other approaches during analysis, any estimation of impact will be sensitive to the estimation methods beyond what was originally proposed and it is doubtful that the IE could make up for the loss of statistical power that would result from these implementation changes.
- **Bias:** The new LTA timeline will introduce bias into the responses of household survey respondents, given the very different survey contexts. Phase I baseline took place during the rainy season in Iringa District, but if baseline data collection for Phase II takes place in late

October it would be the dry season in Iringa, during which village life and activities differ. The variance in responses between rainy and dry seasons, as well as the recall bias from people answering questions about spending, harvesting, and disputes, will also present estimation challenges during analysis. The IE's ability to control recall bias (e.g. respondents remembering with more precision their harvest amounts in October as compared to March), and even the perception of the survey at a different time of the year, are difficult to fully account for in the analysis and will likely limit the comparisons that can be made between the first and second baseline groups.

### Option I: Shifted Timeline, Full Village List

The first option identified by the Project team is to shift the timeline for Phase II baseline data collection from March-April 2018 to October-November 2017, as well as have the Project team and USAID work with LTA and the DLO to ensure that 30 villages are available for Phase II data collection and LTA implementation (i.e., 15 treatment villages and 15 control villages).

Option I still presents the following challenges and risks:

- **Bias from time-inconsistent responses:** Instead of collecting data from comparable groups at the same point in time in years one, two, and three of the study, the IE would have a full dataset of Phase I survey responses that are from a different context and limited in their comparability to Phase II.
- **Risk to power:** The ability to detect an effect based on the number of villages dictated by the IE design assumed that a panel survey would occur over three time periods (baseline, midline, and endline). The challenge for Option I is that period 1 and period 2 will differ in critical ways, namely that village life during the rainy and dry seasons is driven by different activities, and the gains to power by having three comparable periods of data collection may be diminished since the data may no longer be comparable due to seasonal differences. The Project team would need to conduct additional data simulation exercises to determine exactly what effect this will have on the IE's ability to detect an impact.

While Option I would not overcome the potential bias from time-inconsistent responses, it could allow for the IE to detect impact for outcomes where the effect size is large. Should USAID wish to proceed with Option I, it is critical that the following occur:

- The Iringa DLO and LTA would need to agree to expand the village list for Phase II to a minimum of 32 villages (which includes two buffer villages should LTA encounter issues in the selected villages). Also, all villages must also be assigned to the treatment group at the same time; once villages have been assigned to treatment or control groups, they cannot be re-assigned nor can villages get added to the sample ex-post.
- The IE would still need to conduct the midline survey of Phase I villages, since the original IE design is based on collecting data from all villages at the same time of year over three phases. Thus, Phase II data collection in October-November 2017 would need to include a midline survey of all 750 households from the Phase I baseline, as well as a baseline survey of the additional 750 Phase II households.
- The IE team would need to revisit its survey instrument to ensure that reference points included in the original survey are consistent with the new timeframe (e.g., "in the past rainy season" previously referred to 2016, but respondents would likely reference the 2017 rainy season in October).

While Option I preserves as much of the rigor of the original IE design as possible given the LTA implementation changes, the internal validity of the IE would still be diminished because of the changing

period for midline data collection for Phase I, which in the original IE design helped the IE's statistical power by increasing the number of observations and time periods of observation.

## Option 2: Shifted Timeline, Diminished Village List

The second option identified by the Project team is similar to Option 1 and includes the same limitations, but entails greater risk and challenges as it would only use the current list of 28 remaining villages to randomly assign to treatment and control groups. Under Option 2, in October-November 2017 the IE would still conduct a midline survey of the Phase I villages and would survey the reduced number of villages as part of the Phase II baseline data collection.

Option 2 faces the following challenges:

- **Risk to power:** The IE would collect data on 58 instead of 60 villages, and it would require a minimum of a 21 percent change in outcomes between treatment and control under the original design.<sup>18</sup> The IE's ability to detect an effect cause by LTA given the reduction in villages *and* the time change is difficult to estimate, and the Project team would need more time for further data simulation. However, it is unlikely that the IE would be able to reliably detect LTA's impact for outcomes that under the original IE design were already on the margins of being sufficiently statistically powered, such as women's empowerment outcomes.

The challenge with reducing the number of villages *and* changing the timeline is that any estimate of impact would be difficult to differentiate from random noise, become highly sensitive to variance in the data, and be highly contingent on researcher estimation techniques.<sup>19</sup> Option 2 would, however, save time by not revisiting villages that were removed from the master list in mid-2016.

- **Further sensitivity to implementation issues:** Option 2 leaves little to no room for further LTA implementation challenges and changes. If LTA encounters an issue in one of the randomly selected treatment villages and cannot fully implement there, the probability that the IE will be able to detect an effect for even the largest impacts will be significantly lower since there will be no buffer villages from which to choose.

## Estimated Budget Information

Table 2 provides the Project team's expenditures to date for the design and implementation of the LTA IE (through the completion of Phase I baseline data collection and analysis), and current estimates for the completion of activities through September 2018 per Option 1. Should Option 2 be pursued, it would likely entail some modest cost savings to those projected amounts, given that two fewer villages would be included in the remaining data collection under the Project.

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<sup>18</sup> Intra-cluster correlation coefficient: 0.05.

<sup>19</sup> This is particularly an issue with studies that have poor or compromised designs, with little clear estimation strategy. See Gelman, Andrew and Eric Loken, "The garden of forking paths: Why multiple comparisons can be a problem, even when there is no "fishing expedition" or 'p-hacking' and the research hypothesis was posited ahead of time." *Department of Statistics, Columbia University* (2013).