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# USING PARTICIPATORY APPROACHES AND INNOVATIVE TECHNOLOGY TO EMPOWER COMMUNITIES IN SECURING THEIR LAND

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***The views and opinions expressed in this presentation are those of the authors and not necessarily the views and opinions of the United States Agency for International Development.**

**Abstract**

Land and resources documentation can improve rural livelihoods by increasing access to credit and encouraging long-term sustainable investments in the land. However, obtaining land documentation can be difficult due to the high costs of surveying land, stringent accuracy requirements, and outdated land registries. To overcome these constraints, the United States Agency for International Development (USAID) supported the development of participatory approaches as part of Mobile Applications to Secure Tenure (MAST). Through participatory methods and innovative tools, MAST supports systematic mapping and documentation of community land resources in an efficient, sustainable, and participatory manner. Local community members and land resource managers receive training in resources governance, land rights, and participatory approaches to mapping land and resources. MAST has been tested in Liberia, Tanzania, Zambia, and Burkina-Faso, where it significantly reduced claim processing times, led to increased awareness of land rights by community members, and resulted in unprecedented parity in women's claims to land ownership.

**Key Words:**

Innovative technology, participatory methods, land rights, resources governance

## 1. Introduction

Participatory mapping aided by data management tools and satellite imagery has been successfully used to support community-based natural resource management (CBNRM) and land management. Along with an increased interest in bottom-up, crowdsourcing approaches to systematically document land (McLaren, 2011), methods developed through years of participatory mapping grow in importance and are increasingly considered for decentralized land information systems and land administration. Increased coverage and availability of mobile devices, high resolution satellite imagery, and technology, resulted in greater interest in the use of crowdsourcing and Volunteered Geographic Information (VGI) to support data collection and validation for land administration, while developing methods and standards to control data quality (Navratil, 2013). Participatory methods are increasingly tested in the context of new, decentralized land administration, including in a combined participatory land administration format, to meet the growing demand for land documentation that is affordable and comprises customary rights and different tenure agreements (Asiama, 2017).

The concept of fit-for-purpose land administration (Eneman, 2014, Zevenbergen, 2013) evolved out of an identified need to provide options for securing the land rights of disadvantaged, vulnerable or poor populations. Descriptive data models that can be used to support fit-for-purpose land administration include the Social Tenure Domain Model (STDM) (Lemmen, Christiaan, 2007) and the broader Land Administration Domain Model (LADM) (Lemmen, Christiaan, 2010). These concepts and participatory methods have been tested in developing countries to leverage the increased affordability of mobile devices and mapping technologies.

## 2. Approach

Recognizing the lack of transparency and clarity around land and resource allocation is a key development challenge, the United States Agency for International Development (USAID) tested the feasibility of using a combination of participatory approaches and technology to document land allocation and land rights. The approach developed to help guide participatory land documentation, Mobile Applications to Secure Tenure (MAST), is centered on participatory methods and flexible technology tools to efficiently, transparently, and affordably map and document land and resources rights. Lessons learned, best practices and tools developed under the MAST approach have been documented by USAID's Land Technology Solutions Project (LTS) and shared on USAID's Land Links.

MAST is a tool-agnostic approach that uses common land administration and resource management data standards and can be adapted by any development partners and stakeholders to test and scale new methods for participatory land and resources management. The approach is most suited to clarifying land and resources rights and reducing land insecurity for disadvantaged populations in rural and underserviced peri-urban and emerging urban areas. MAST promotes local self-reliance, allowing development partners and local government officials to test and implement tangible, cost-effective and impactful interventions that can be locally sustained and replicated.

The MAST approach identifies key steps and principles:

Phase 1. Identify specific needs and opportunities through testing or implementing community- based land documentation and validation;

Phase 2. Complete an assessment and identify technical, legal, social and institutional requirements;

Phase 3. Train communities and use participatory mapping and rural appraisal methods to clarify, document and validate land allocation and use of land and resources;

Phase 4. Adapt methods, technology and related tools only as needed in order to clarify and achieve consensus on land rights, and to improve tenure security;

Phase 5. Document all steps in the process and use data to measure progress; Phase 6. Share lessons learned, data findings, technology, methods and knowledge;

Phase 7. Develop a sustainability plan for long-term data management and technology use.

## 3.Case studies and initial findings

MAST was first developed and tested in Burkina-Faso, Tanzania, and Zambia using a combination of participatory mapping methods, extensive sensitization training, and customized data collection and management tools. Although using different technology tools, the pilots used or adapted common data models, such as STDM and LADM, and followed best practices established in community-based participatory mapping. Technology tools and workflows designed to support data collection, validation and management as part of decentralized land information systems were highly customized for local civil society organizations or land administration offices. In two of the case studies, village community members have the right to obtain formal land documentation.

Methods and tools adapted to support and test the approach encompassed mobile devices, global positioning system (GPS) receivers, databases and data management platforms to assist in collection, validation and management of information related to land and resources rights, such as occupant's claims to land.

In Burkina-Faso and Tanzania, USAID's Evaluation, Research and Communications (ERC) planned field data collection through training community intermediaries, testing the potential to crowd-sourced land delineation. In Zambia, under the USAID Tenure and Global Climate Change (TGCC) and in Tanzania under the USAID Land Tenure Activity (LTA), a scale-up of the MAST approach, land demarcation was planned systematically using satellite imagery,

participatory mapping and tasking. While the processes were similar across the case studies, the workflows and tools were customized to each context.

**Burkina-Faso**

In Burkina-Faso, the process and tools were tested to help secure ownership of land assets as a means to increase resilience to shocks and stressors. The National Land Observatory of Burkina-Faso (ONF-BF) identified key aspects of the process that were adapted to meet the need for training and customary land certification, with a specific focus on women's land rights. The MAST approach was adapted to map and document 5,000 ha of land in a participatory, streamlined manner.

**Tanzania**

Although villagers can obtain formal documentation of customary land in Tanzania, land informality and insecurity remain high. Using the MAST approach, USAID helped District Land Officials to scale up customary land certification, while reducing disputes and costs to demarcate and validate over 70,000 ha of land.

**Zambia**

Working with traditional authorities, communities and civil society organizations, USAID helped harmonize boundaries, map land resources, and document customary land across 2 districts in Eastern Zambia. The MAST participatory approach, customized tools and workflows assisted in the mapping and documentation of over 100,000 ha of customary land.

**Results**

The approach supported land delineation and documentation of over 50,000 customary land parcels in Tanzania and Zambia, and over 3,000 parcels in Burkina-Faso (Figure 1). Findings from these case studies indicate efficiency gains over time, with MAST helping decrease the time gap between demarcation and certification over time. The case studies also highlight important differences in average parcel size per village between sites in Zambia (Chipata and Petauke districts) and sites in Tanzania (Iringa district) and Burkina Faso (Boudry commune). A distribution chart of the land demarcation data by average parcel size (Figure 3) sheds light on the overall differences in average parcel size. These findings highlight the larger size of parcels and the greater variability in parcel size in Zambia when compared to Tanzania and Burkina-Faso. Across all case studies, although women and men single landholder claims achieve parity in some cases, women single ownership parcels are consistently smaller than men's parcels (Figure 5), which suggests that women, especially women head of households and widows, could be less resilient to economic and food security shocks.

| | |
|---|---|
| **Tanzania** | – ~39,000 parcels mapped and certified<br>– Average parcel size 1.8 ha |
| **Zambia** | – Over 13,000 parcels mapped<br>– Average parcel size 11 ha |
| **Burkina Faso** | – Over 3,000 parcels mapped<br>– Average parcel size 1.7 ha |

*Figure 1. Initial land documentation results using a MAST approach.*

*Source: USAID USAID ERC, LTA, LTS, TGCC*

USAID completed an impact evaluation of land tenure interventions in Zambia and is conducting an impact evaluation to test the theory of change of the MAST-assisted activity in Tanzania. In Zambia, land documentation had a positive impact on household perceptions of improved tenure security (Persha, 2015, USAID TGCC IE report, 2018). While longer- term outcomes in Tanzania will be measured as part of the endline phase, findings from the midline survey (USAID LTA IE report, 2018) indicate an 11% increase in treatment group respondents who felt that disputes over land will improve in the next year. The opposite was found for the Tanzania comparison group, with a 9% decrease in respondents who felt that disputes over land will improve in the next year.

A central aspect of the MAST approach is community engagement, with a focus on including all members of the community, women and men, in all phases of the process. Using the MAST approach, women and men participated in delineation of land through community surveyors, participatory mapping and training, validation, and adjudication. Results show that uptake, or conversion from land claims to certificate, was over 80% (Figure 2) in most site villages in Tanzania and Zambia, indicating a high level of community participation.

The MAST approach, while tailored to the specific needs of each local land management organization and communities, has a particular emphasis on women participation and training on women's land rights. Findings suggest the participatory aspect of the approach results in high levels of women participation in decision making around land. This is reflected in the high proportion of women joint and single ownership claims to land in Tanzania and Zambia (Figure 4). Over 45% of land documentation beneficiaries in Tanzania and Zambia were women. This is in striking contrast with traditional reports of women participation in land decision making (USAID MAST and Gender Blog, 2019).

Preliminary findings from the Tanzania impact evaluation indicate a 11.4 % decrease in the likelihood of a land decision solely by the male household head among treatment group respondents (USAID LTA IE report, 2018).

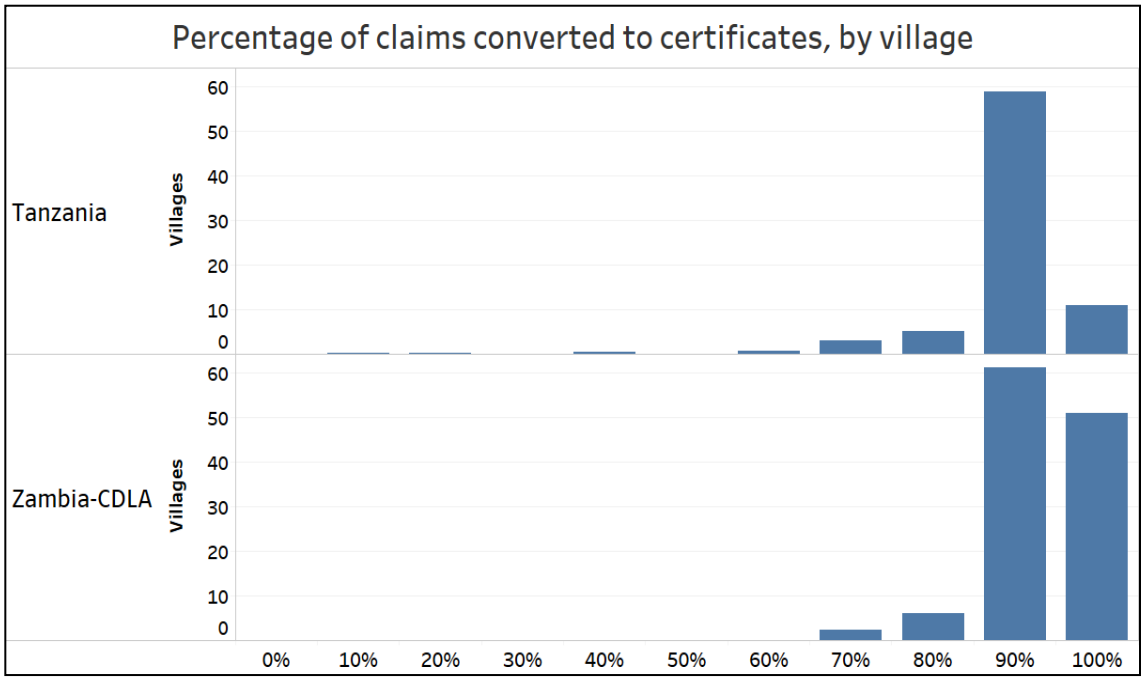


*Figure 2. Uptake of land claims in Tanzania (Iringa district) and Zambia (Chipata district). Source: USAID LTS*

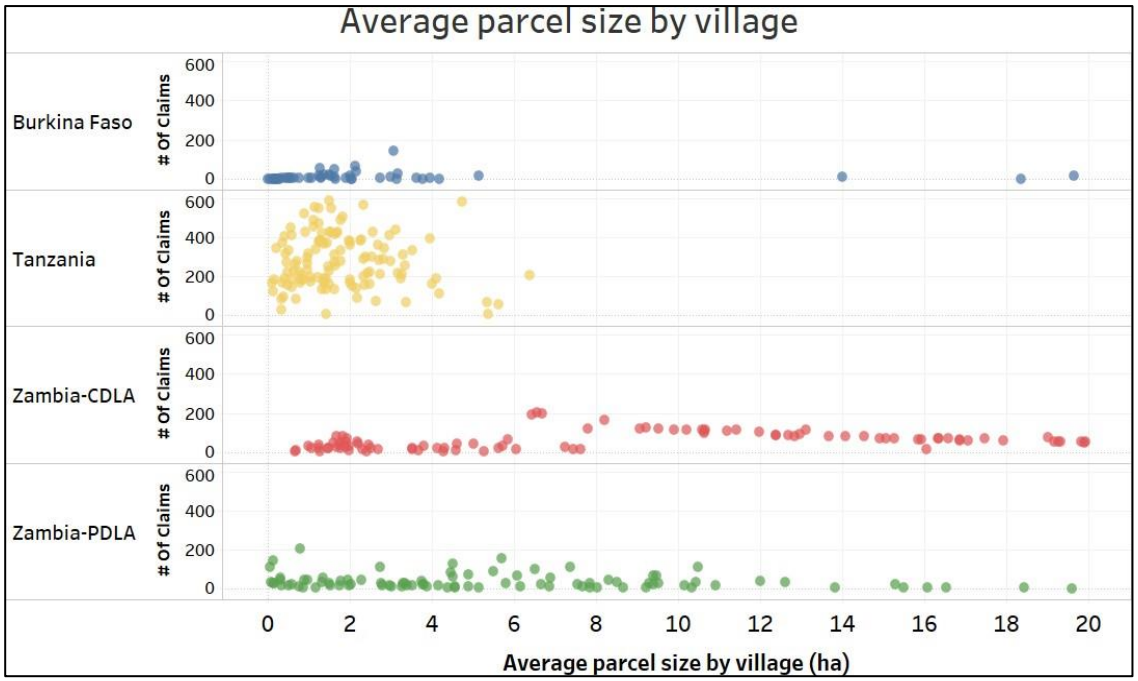


*Figure 3. Average parcel size (village). Source : USAID LTS*

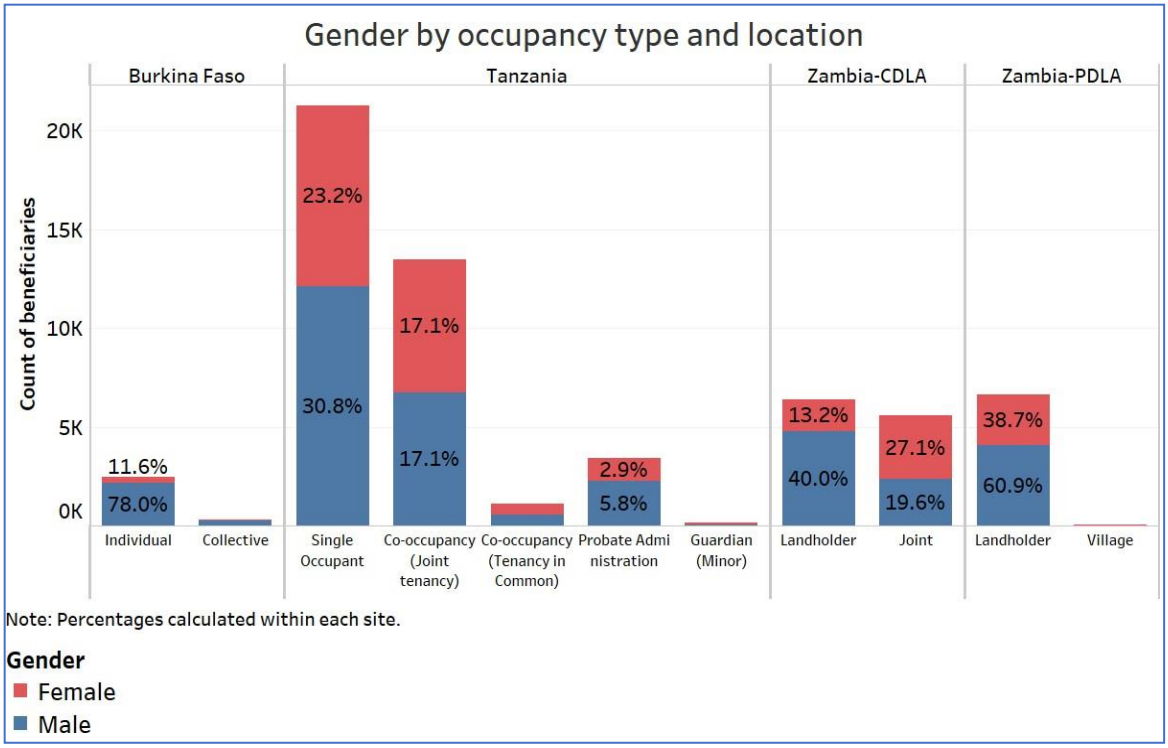


*Figure 4. Gender of MAST-assisted beneficiaries. Source: USAID LTS*

| Parcel size (ha) by gender and tenure type | Female | | Male | |
|---|---|---|---|---|
| | Mean | Median | Mean | Median |
| **Zambia - Petauke** | | | | |
| Primary landholder | 8.5 | 6.1 | 9.7 | 6.8 |
| Joint landholder | 10.5 | 7.2 | 9.6 | 6.7 |
| Person of interest | 10.6 | 7.3 | 10.4 | 7.2 |
| **Zambia - Chipata** | | | | |
| Primary landholder | 2.5 | 1.8 | 2.8 | 2.0 |
| Joint landholder | 2.9 | 1.8 | 3.2 | 1.8 |
| Person of interest | 3.2 | 3.0 | 3.3 | 3.3 |
| **Burkina Faso - Boudry** (all holding types) | 1.5 | 1.0 | 2.5 | 1.2 |
| **Tanzania - Iringa** | | | | |
| Single Occupancy | 1.1 | 0.5 | 1.7 | 0.7 |
| Co-occupancy* | 1.3 | 0.5 | 1.3 | 0.5 |
| Co-occupancy** | 1.5 | 0.6 | 2.2 | 0.9 |

*Joint Tenancy; **Tenancy in Common

*Figure 5. Gender and parcel size of MAST-assisted beneficiaries.*
*Source: USAID LTA, ERC, TGCC, LTS*

## 4.Next Steps and Conclusions

This paper outlines the MAST approach and presents initial findings from MAST pilots in Sub-Saharan Africa, which show improved efficiency and lower costs in land demarcation, low rates of disputes over land, and high levels of women participation in land claims and in decision making over land. MAST is currently scaled up to a second district in rural Tanzania and is tested in the context of community forest management in Liberia. The approach is flexible and will evolve to assist USAID and development partners in their planning for more efficient, targeted land interventions centered on community participation that help to secure land rights and provide economic benefits for the most disadvantaged communities.

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