

Introduction

The Mobile Application to Secure Tenure (MAST) pilot tests the viability of an innovative participatory or “crowdsourced approach” to capturing land rights information, including information about customary holdings, using mobile technology. MAST introduces an easy to use, yet accurate, framework that allows rural communities to transparently, quickly, and accurately map their lands and document land rights.

The United States Agency for International Development (USAID) is piloting MAST through the Evaluation, Research and Communication (ERC) contract, which focuses on Strengthening Tenure and Resource Rights. This contract is managed by USAID’s Washington-based Land Tenure and Resource Management Office, and is being implemented by The Cloudburst Group. The MAST Pilot program fits into USAID’s strategic reform agenda pertaining to the use of science and technology to resolve development problems.

Trusted Intermediaries capturing land rights information in Ilalasimba



Pilot Area

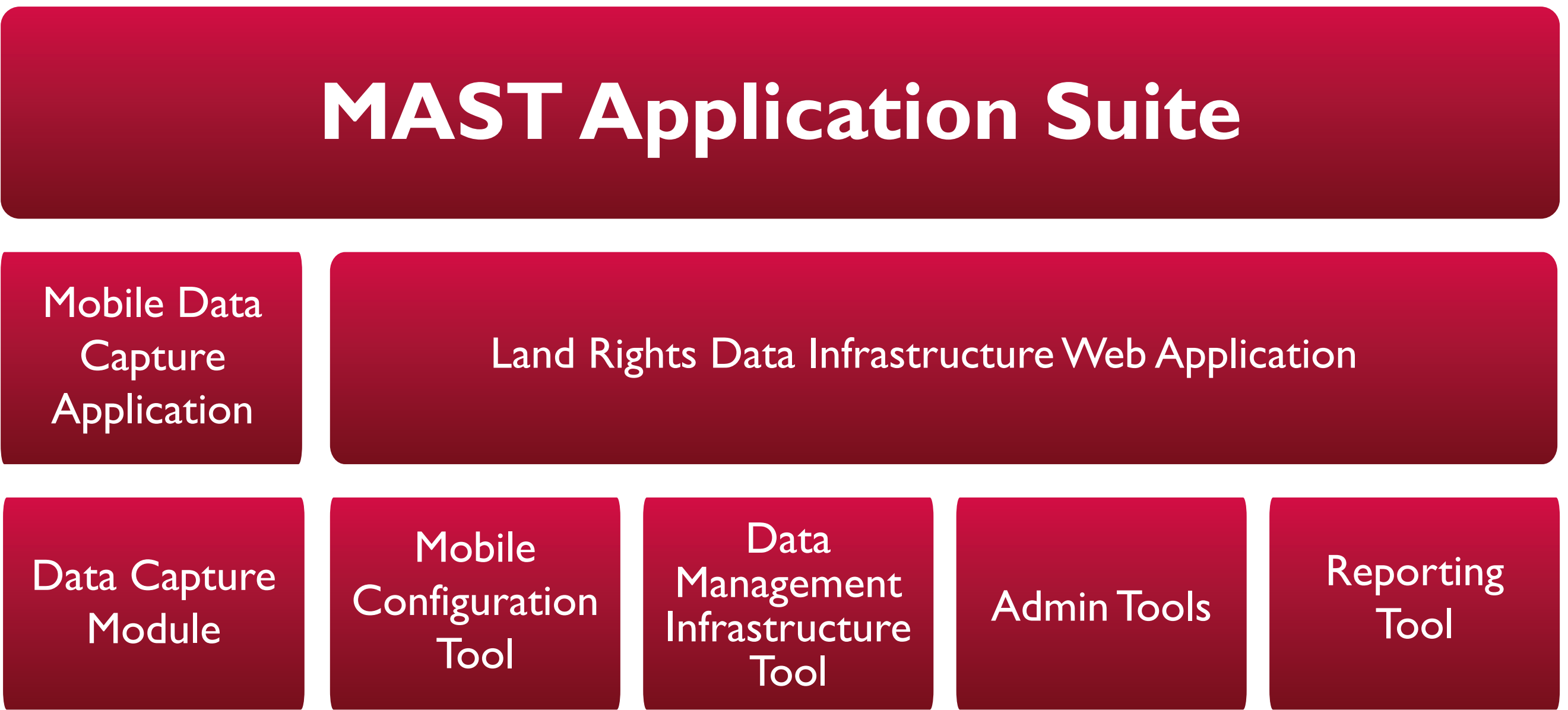
Tanzania was selected as the site for the MAST Pilot. The objectives of the Pilot align with the needs of the Government of Tanzania related to securing land rights for Tanzania’s rural population. Tanzanian development priorities are focused on lowering the cost of land titling programs and improving land governance in order to stimulate economic development, particularly by promoting large-scale investment in agriculture.

For the first phase of the pilot a relatively small village, Ilalasimba, was selected in Iringa Rural District. Iringa falls in the important Southern Agricultural Growth Corridor of Tanzania (SAGCOT), a zone of interest for both the Government of Tanzania and USAID. Ilalasimba village is fairly representative of the average Tanzanian village. Most of the economic activities within the village are focused on agriculture. Maize is the predominant crop, and several secondary cash crops are grown by inhabitants (tomatoes, sunflower and tobacco). It has an estimated area of 31 sq. km and a small population (325 households). On average, each household occupies 2 or 3 parcels. Parcel sizes range from 5 to 10 acres and larger holdings are farmed in peripheral areas of the village.

Technology

The MAST pilot developed an integrated application suite consisting of two principal components: an android-based data capture application that was specifically developed to capture of land rights information and a cloud-based data management infrastructure.

Mobile Application to Secure Tenure (MAST)



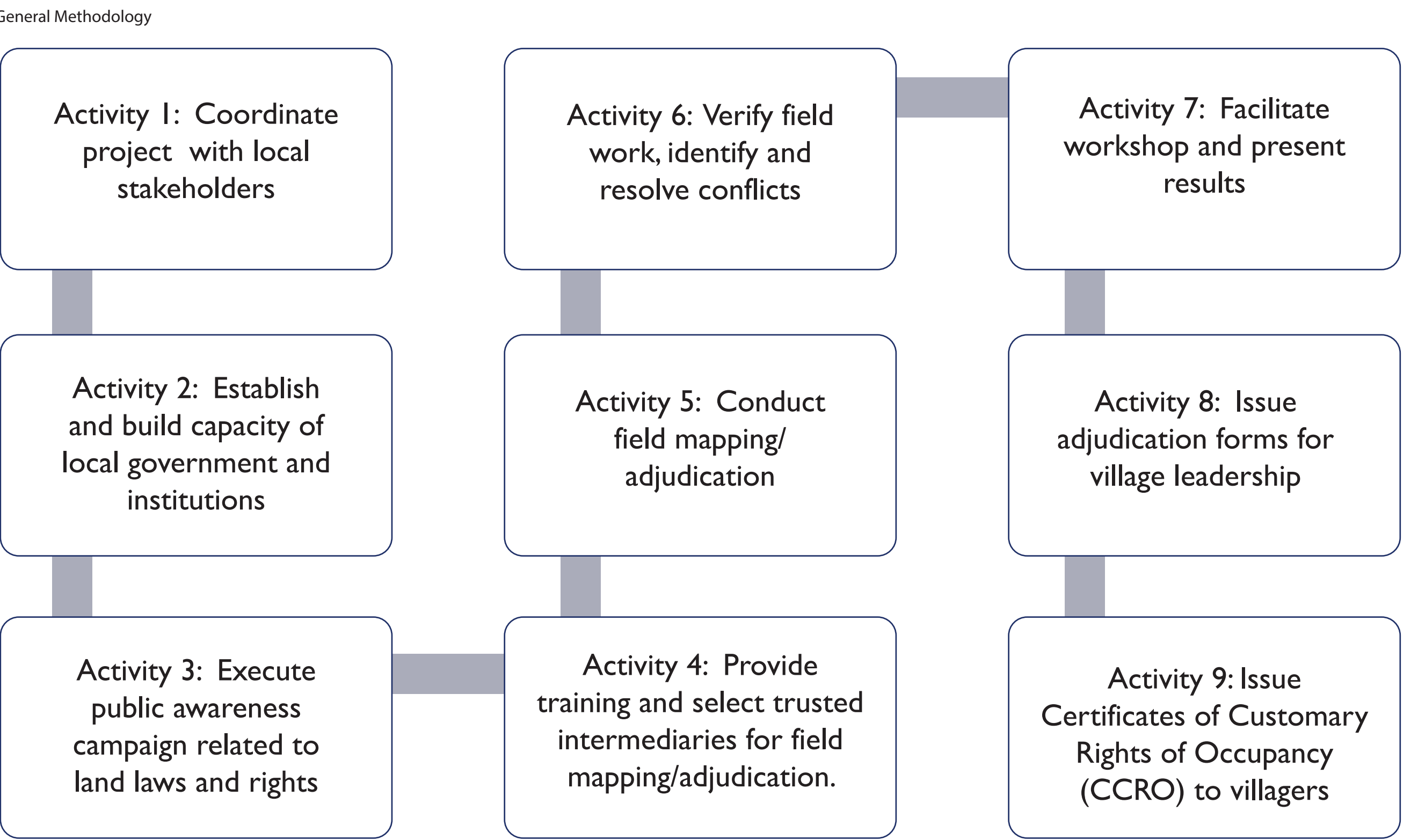
MAST Conceptual Architecture

The MAST Mobile Data Capture Application captures land rights information (spatial, alphanumeric and multimedia) in the field. Data is collected and stored on a users’ device, and once the user is within the influence region of a mobile network or internet, data is uploaded to the cloud-based data management infrastructure.

The MAST Data Management Infrastructure is a cloud-based web application which provide tools to ingest, manage and store captured information. It facilitates the intake and validation of data into a relational database management system that is configured on the Land Administration Domain Model/Social Tenure Domain Model. It processes and validates data according to predefined rules, facilitates the visualization and editing of data, and allows for the configuration and generation of formal land rights documentation (i.e. Certificate of Customary Rights of Occupancy in Tanzania).

Methodology

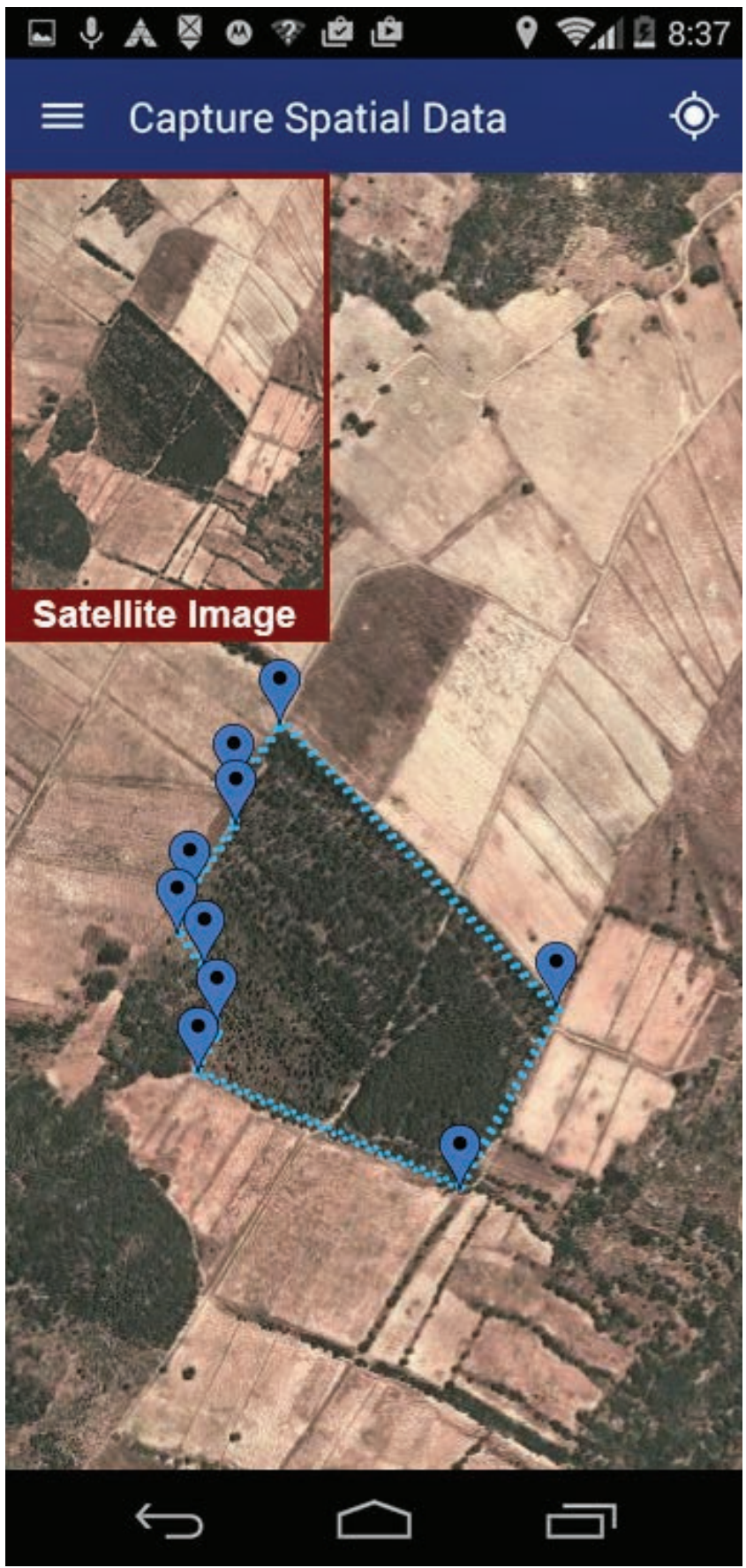
The general methodology that has been applied focuses on building capacity and awareness of land rights for local women and men while enabling local youth within the village to systematically capture land rights information with mobile phones.



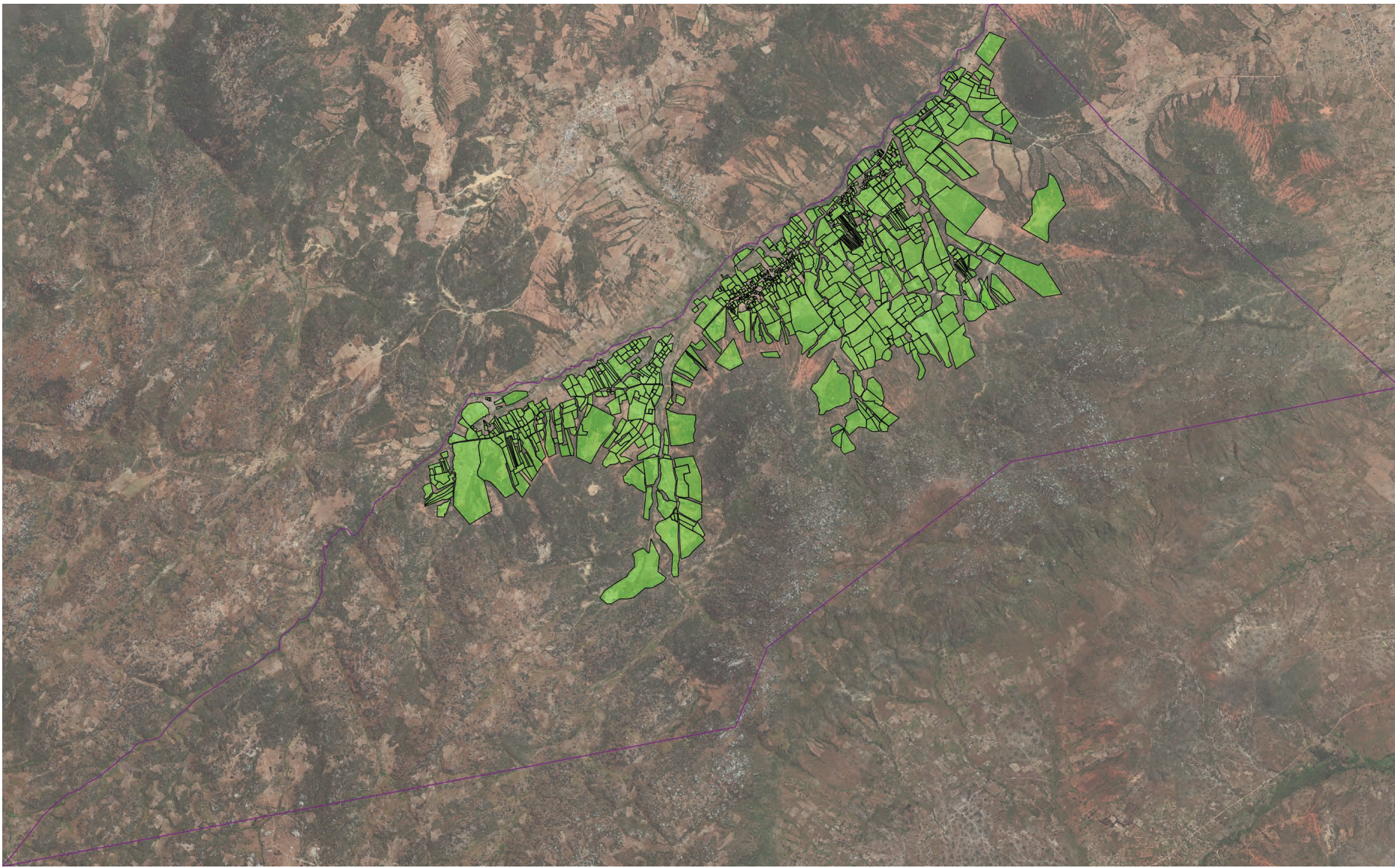
Results

The MAST Pilot project validated the hypothesis that land can be mapped and land rights documented and registered through a participatory or crowdsourced approach. Key results include:

- The MAST application suite provides less well-educated users in rural Tanzania with an accessible data capture tool, and at the same time provides effective tools for the land administration professionals in the district land office;
- Key stakeholders have been strong partners and involved in pilot design and implementation and have expressed strong interest in helping to mentor possible follow-on villages;
- The pilot has built awareness of issues related to rural adjudication of land rights – particularly the rights of women to own land – that will have impacts beyond the duration of the Pilot project;
- Outreach to the hamlet-level was found to be a useful method of disseminating information and building awareness of land laws and land rights, as well as for identifying and resolving conflicts;
- Mapping was conducted on a hamlet-by-hamlet basis and resulted in a efficiencies in both volume and speed compared to traditional mapping methods;
- Data capture and field adjudication took place over a three (3) week period and resulted in the capture of a total of nine hundred and thirty-seven (937) parcels. This represented an average of fifty-five (55) parcels per day or an average of six (6) parcels by each of the eight (8) trusted intermediaries.



MAST Mobile Data Capture Application



Map of village parcels captured with MAST

- Because the MAST technology closely follows the legal requirements for rural adjudication, key stakeholders, including land administration professionals and administrators, were willing to support its deployment.

Discussion/Conclusion:

The use of mobile technologies and a participatory mapping/data collection approach were central components of the MAST Pilot project. The MAST application suite provided an integrated mobile data capture tool and web-based framework that facilitated the adjudication of land rights in line with the legal requirements of Tanzania’s land laws in rural Ilalasimba. Young villagers were trained to conduct field data capture using an intuitive mobile application, while data management tasks required for formal adjudication and the issuance of CCROs were conducted by district land officers using a web-based data management infrastructure. This participatory methodology built awareness of land laws and rights, particularly of women’s rights to land, and the mobile application increased the speed at which this information could be captured. Based on initial results, USAID will extend the pilot to two additional villages in Iringa Rural District to determine whether the project offers a scalable and sustainable approach to securing land rights in Tanzania in line with the Government’s objectives.