



# MOBILE APPLICATION TO SECURE TENURE (MAST): LESSONS LEARNED

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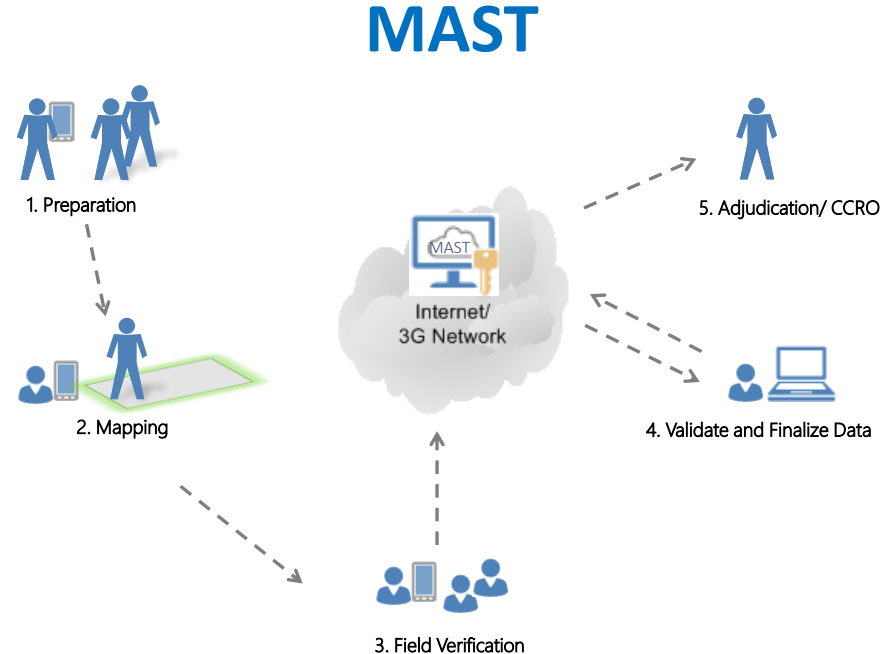
JEFFREY EUWEMA, CLOUDBURST  
MUSTAPHA ISSA, CARE/ TANZANIA  
JUNE 3, 2016

A close-up, low-angle shot of four young people of African descent looking intently at a black smartphone held by one of them. The person on the left is wearing a pink shirt, the person in the center is wearing a blue shirt, and the person on the right is wearing a dark jacket. The background is a bright, overexposed sky.

## — PART I: OVERVIEW OF IMPLEMENTATION & TECHNOLOGY

# WHAT IS MAST?

- MAST is a combination of a **mobile data capture application**, a **data infrastructure**, and a **participatory methodology**.
- The **technology**: captures and manages the data needed to map and document land rights – and in the case of Tanzania, is used to deliver CCROs.
- The **methodology**: crowd sources data collection, using local people called "Trusted Intermediaries" to collect the spatial and biographical data usually collected by land professionals.



# ORIGINAL PILOT OBJECTIVES

- Understand how citizens and communities react to & engage with the MAST approach
- Test ways to engage land professionals in the crowdsourcing of land rights
- Understand what makes a good 'Trusted Intermediary'
- Identify what land rights information must be captured to provide 'fit for purpose' tenure security
- Test a range of technology tools to identify affordable/appropriate solutions
- Establish approaches to maintain land right information after the pilot and expanding its use
- Explore how the results from the pilot can be shared and the lessons and practical applications expanded, replicated and scaled for USAID and others



## OVER TIME THE PILOT FOCUS CHANGED TO:

- Can USAID support the GOT to deliver formal documentation of land rights using MAST's technology?
- Can USAID modestly scale a “crowd-sourced” approach?

With a key background question:

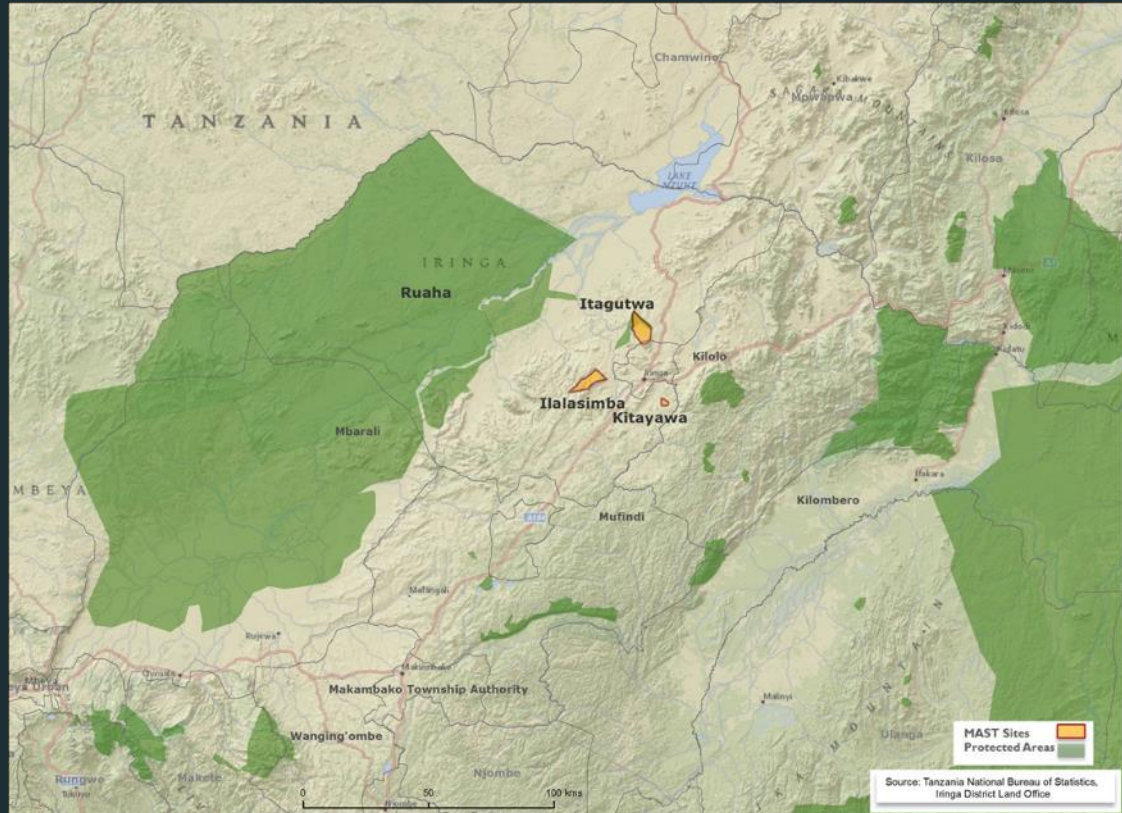
- Can these efforts help increase tenure security for local people?



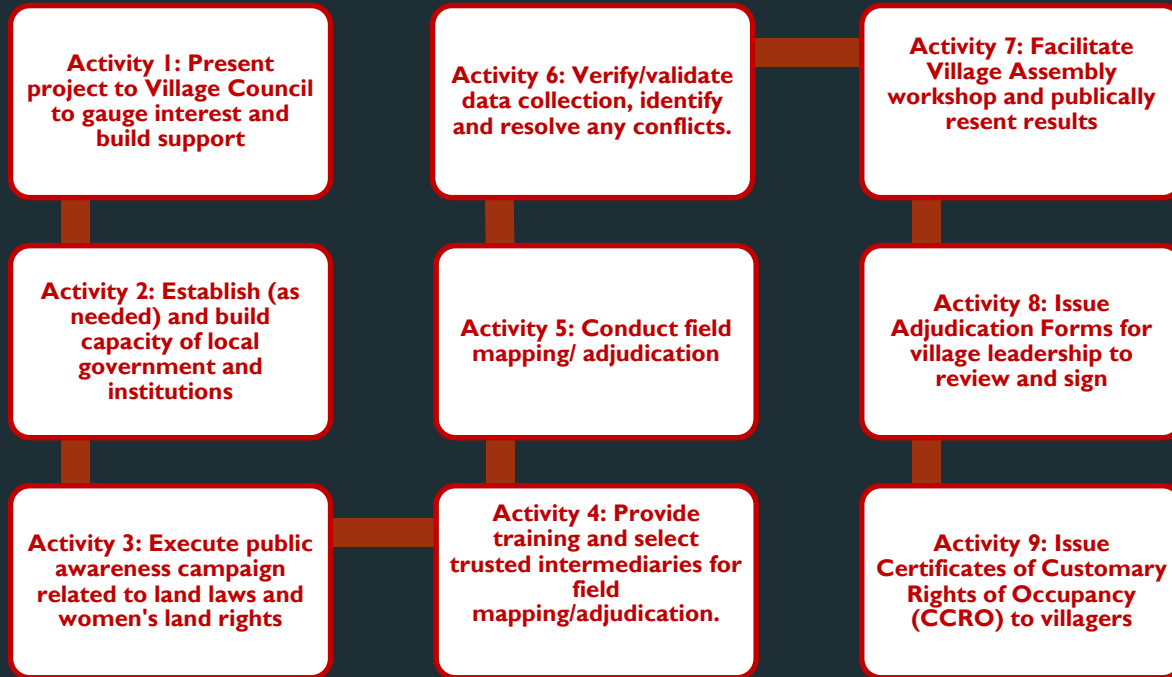
# WHERE MAST WORKED

- Tanzania was chosen because:
  - GOT has important commitments related to land titling
  - In partnership with USG, Tanzania is supporting critical agricultural development efforts
  - GOT was open to supporting this approach
- Pilot operated in three villages in Iringa Rural District:
  - Ilalasimba: 325 households, 910 parcels, 65 sq. kms.
  - Itagutwa: 441 households, 1,090 parcels, 75.8 sq. kms.
  - Kitayawa: 546 households, 1,878 parcels, 46 sq. kms.
  - All villages are rural, with agriculture-based livelihoods predominating, low levels of land-based conflict

# MAST PILOT VILLAGES



# OUR APPROACH: THE IMPLEMENTATION FRAMEWORK





# STEP I: PRESENT PROJECT TO VILLAGE COUNCIL

- Led by Local Partners CARE & TAGRODE, along with GoT
- Meet with village leaders to introduce the project and explain project benefits
- Explore village characteristics – existence of local institutions, economic activities, etc.
- Discuss with villagers to gauge interest



## STEP 2: ESTABLISH/BUILD CAPACITY FOR LOCAL INSTITUTIONS

- Identify institutional needs:
  - Is there a sitting VEO? If not, work to appoint
  - Is there Land Adjudication Committee? If not, work to establish
  - What is the gender composition of Committee? Suggest adjustments as needed
- Do Committee members understand Land Laws?
- Provide focused training to Committee members, and to Village Council

## STEP 3: EXECUTE PUBLIC AWARENESS CAMPAIGN

- Outreach done by CARE/TAGRODE with DLO support
- Hold initial Village Assembly Workshop to provide overview of project and initial trainings on land laws
  - Training focus on: Village Land Act (VLA), land adjudication process, women's rights under the VLA and the Constitution,
- Develop hamlet-by-hamlet outreach and training strategy
- Support training efforts with maps to demonstrate what will happen

## STEP 4: TRAIN AND SELECT TRUSTED INTERMEDIARIES

- Work with village leaders to identify candidates among youth who will be TIs
  - Need to be literate
  - Need to be capable of walking fields
  - Need to be demonstrate skills at using technology
- Provide 5 days of training on how to use technology suite
  - Training is hands-on, active learning
  - In classroom & in field
- Selected based on merit, with attention to gender balance



## STEP 5: CONDUCT FIELD MAPPING/ ADJUDICATION

- Identify date for mapping and work with village leaders to ensure people know when the TI team will arrive
- TAGRODE manages process of field adjudication with team of TIs
- Parcels mapped following VLA process – walk boundaries with land holders, neighbors, and Land Adjudication Committee members
  - TIs capture parcel boundaries
  - Disputes addressed with Land Adjudication Committee members
  - Required demographic/tenure information captured on MAST app
  - Photo of land holders taken with app and added to data capture form





## STEP 6: VERIFY DATA COLLECTION & RESOLVE CONFLICTS

- Project leaders verify data by accessing Data Management Infrastructure
- Verification involved:
  - Verifying data
  - Identifying parcel gaps or overlaps
  - Identifying areas of potential conflict, and resolving them with help of Land Adjudication Committee officer as required
  - Resurveying as required

## STEP 7: PRESENT RESULTS AT VILLAGE ASSEMBLY WORKSHOP

- After mapping and registration data is verified and conflicts addressed, arrange for public presentation
- Presentation is done by local partner TAGRODE at Village Assembly gathering
- Gathering allows villagers to ask questions & raise concerns
- Provides validation of results
- Allows process to move to next stage – validation at DLO



## STEP 8: ISSUE ADJUDICATION FORMS

- DLO geospatial staff review data collected in the field
- Address concerns such as missing parcels, overlapping boundaries
  - May require re-mapping in the field
- From the MAST software, print and review Adjudication Forms
- Senior Land Officer signs Adjudication Forms
- Forms returned to village for review
- Once reviewed, validated and signed at village, Adjudication Forms return to DLO
- This allows final step to take place: printing, registration, delivery of CCROs

## STEP 9: CCROs ISSUED TO VILLAGERS

- Based on approved Adjudication Forms, DLO uses MAST software to generate and print CCROs
- CCROs must be printed on crested paper
- CCROs printed in triplicate
- Returned to village to be signed by Village Chairperson, VEO, landowner
- Must be collected & returned to DLO
- Must be signed by Senior Land Officer & recorded before release/delivery
- CCROs then delivered back to Village Council for distribution



# THE MAST TECHNOLOGY SUITE





# THE MAST TECHNOLOGY SUITE

## Key Components of MAST Application

Mobile Data  
Capture  
Application

Land Rights Data Infrastructure Web Application

Data Capture  
Module

Mobile  
Configuration  
Tool

Data  
Management  
Infrastructure  
Tool

Admin Tools

Reporting Tool

# SPATIAL DATA CAPTURE



MAST Mobile Application, depicting image base map, showing land parcels bounded by a road and river.



MAST Mobile Application, showing data being captured; GPS tools used to capture boundary points of parcel

# ATTRIBUTE DATA CAPTURE PROPERTY INFORMATION

← Capture Attributes

Project Name : PhaselI\_Test

Spatial unit Id : 1

Village Name : Itagutwa

Select Person Type  
Natural

Select Hamlet  
Hamlet2

Select Witness 1  
Adjudicator 2

Select Witness 2  
Adjudicator1

Adjudicator  
Adjudicator1  
Adjudicator 2  
Adjudicator 3

GENERAL

← Add Property Info

Proposed Use  
Select an option

Existing Use  
Select an option

Land Type  
Select an option

Neighbor North

Neighbor South

Neighbor East

Neighbor West

Save Cancel

PROPERTY

← Add Social Tenure

Type of Tenure  
Multiple Occupancy(Tenancy in Common)

Type of Right of occupancy  
Customary Right of Occupancy

Select an option  
Customary Right of Occupancy  
Derivative Right

Save Cancel

TENURE

← Add Person

First Name

Middle Name

Last Name

Occupation

Marital Status  
Select an option

Save Cancel

PERSONS

← Multimedia List

Spatial unit Id : 4

No items to show

Select option to capture

Image

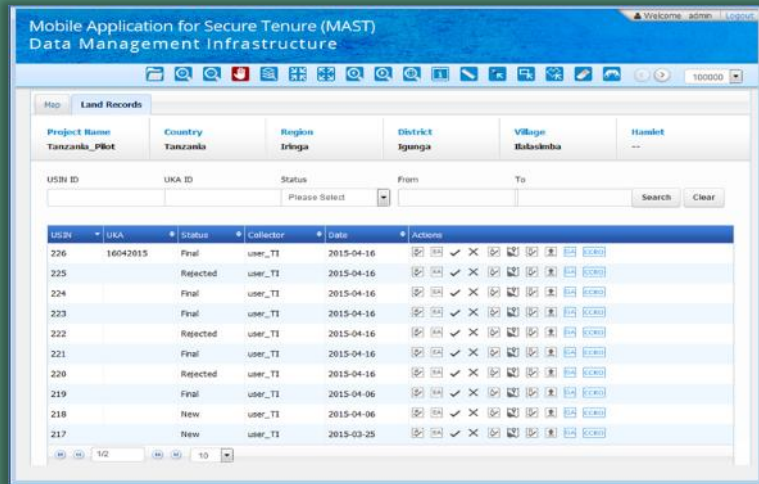
Video

Add New Back

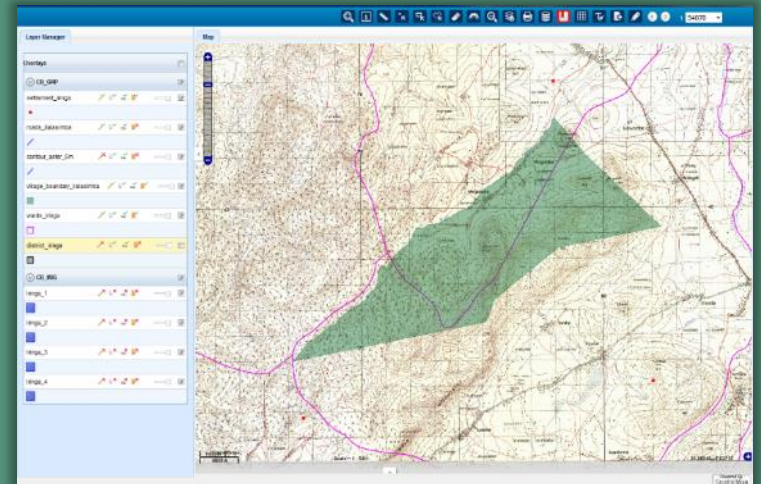
MULTIMEDIA

# DATA MANAGEMENT INFRASTRUCTURE: DATA REVIEW AND EDITING

Dashboard provides a consolidated view of the land rights data collected in the field



Mapping tools provides functionality to view and review data of spatial units on map



# DATA MANAGEMENT INFRASTRUCTURE: REPORTING

Adjudication Form/Application is generated by the application for each specific property, for signature by occupants and neighboring occupants.

5/31/2016

**MAST**  
SHIRAZI YA VOZI NA S, 1999  
KOHU YA SHIRAZI YA VOZI NA S, 1999  
Jina la Mwanachama/Utumishi na Sali

Form na 18 & 40

**MACHOZI**

Jina la Kijiji: Kinyere  
Jina la Kitongoji: IGILIA\_B  
Namba ya UKA: KYU/IGILIA\_B  
Aina ya Umiliki: Mili ya panga (Mie na Nume)

1. \_\_\_\_\_ 4. \_\_\_\_\_  
2. \_\_\_\_\_ 5. \_\_\_\_\_  
3. \_\_\_\_\_

Hali ya Mazingira: Tumburane  
Eneo kwa Ekaru: 0.125

Matumizi ya Ardhi:  
Ya kama: \_\_\_\_\_  
Matumizi: \_\_\_\_\_

Ulimo wa Mili: \_\_\_\_\_  
Tarehe ya Maombi: \_\_\_\_\_  
Tarehe ya M/Kijiji: \_\_\_\_\_

Yaliyopendekwa:  
Matumizi: \_\_\_\_\_

**UNAKOZI**

Jina La Kwanza	Jina La Wili	Jina La Uchoo	Miliki	Makamizi	Miezi	Jina la	Umri	Rdoa	Uraia	Anzazi	Mkazi	Simu
Sabari	Makio	Malinga	Ndipo			Kume	41	ndoa	Pitancana		Ndipo	015094323
Maria	Amari	Mpagawani	Ndipo			Kike	33	ndoa	Pitancana		Ndipo	0156175956

**Majirani**

Jina	Saini	Jina la Shahidi (Kamati ya Uamuzi)	Saini	Mchoro:
Kakadiri	Minda Sanga	1. PANURA MALINGA		
Kuani	Makio Malinga	2. AGATHA MULELA		
Mashariki	Makio Malinga			
Mashariki	Eddy Nyande			
Makio				

Hali ya njia na matumizi mengine:

Mtu/Watu wenye maslahi	Jina
Mtu mwenye Maslahi	Sabari Sabari Malinga
Mtu mwenye Maslahi	Sabari Sabari Malinga
Mtu mwenye Maslahi	Makio Sabari Malinga
Mtu mwenye Maslahi	Sabari Sabari Malinga
Mtu mwenye Maslahi	Sabari Sabari Malinga
Mtu mwenye Maslahi	Sabari Sabari Malinga
Machomoni	Jina

Mamuzi/Miliki wa Ardhi Jina : Sabari Sabari Malinga (Miliki)

Saini \_\_\_\_\_ Tarehe \_\_\_\_\_

Mamuzi/Miliki wa Ardhi Jina : Maria Amari Mpagawani (Miliki)

Saini \_\_\_\_\_ Tarehe \_\_\_\_\_

Jina: \_\_\_\_\_  
Mamuzi: 806795.570  
Kakadiri: 9125214.824

**Kwa Matumizi ya Ofisi:**

Mamuzi ya Mafanikio ya Kiji \_\_\_\_\_

Uamuzi wa Mafanikio ya Kiji \_\_\_\_\_

Jina la Mwanachama: OHARI JOSEPH KINDOLE

Saini \_\_\_\_\_ Tarehe \_\_\_\_\_

Jina la Kati: NDA ENOCK KABINDA

Saini \_\_\_\_\_ Tarehe \_\_\_\_\_


Jina la Mwanachama: God Mvanda

Saini \_\_\_\_\_ Tarehe \_\_\_\_\_



# DATA MANAGEMENT INFRASTRUCTURE: REPORTING

MAST will generate CCRO certificate for a selected property based on a predefined template.

SHERIA YA ARDHI YA VIJILI 1999 (Na. 5 ya 1999) HATI YA HAKIMILIKI YA KIMILA (CHINI YA FUNGU LA 25)	
Leo tarehe ..... mwezi ..... mwaka ..... Hii ni kuthibitisha kuvamba Halmashauri ya Kijiji cha <b>Itagutwa, S.L.P. 106</b> imetoka kwa <b>Sailoni Maiko Malinga</b> na <b>Maria Amsoni Mgayavanu</b> kwa umiliki wa pamoja "Mke na Mume" (humu ndani wakirejewa kama "Wakazi") hakimiliki ya kimila (itaibwa "hakimiliki") juu ya ardhi iliyofafanuliwa katika Jedwali (humu ndani itaibwa "ardhi") kwa kipindi kisicho na kikomo tangu tarehe ..... mwezi ..... mwaka ..... kova maudhui na tafsiri halisi ya Sheria ya Ardhi ya Vijiji na kova kuzingatia vipengele vyake na kanuni zozote zinazotungwa chini ya sheria hiyo au sheria mbadala au marekebisho yake na kova mujibu wa masharti yafuatayo:	
i. Wakazi watalipa kodi ya mwaka ya Shs. .... kabla ya tarehe ..... ya mwezi ..... kila mwaka (kama inahusika).	
ii. Ardhi itatumika kwa ajili ya <b>Makazi</b> .	
iii. Wakazi watawajibika kuhifadhi mazingira (ardhi na maji).	
iv. Wakazi watahakikisha kuvamba mipaka ya ardhi inalindwa na idumu kuwa bayana kwa kipindi chote cha hakimiliki.	
v. Wakazi wataheshimu na kuhifadhi haki za njia zilizopo.	
vi. Uhakikishi wa hakimiliki kwa mtu yeyote au kikundi chochote cha watu ambao kwa kawaida si wakazi wa kijiji lazima uidhinishwe na Halmashauri ya Kijiji.	
<b>JEDWALI</b> (Maelezo kamili ya eneo na mipaka yake) Ardhi hii yenye eneo lenye ukubwa wa <b>ekari 0.126</b> iliyoko katika Kitongoji cha <b>IGULA_B</b> . <b>Mipaka:</b> Kaskazini imepakana na Mtindo Banga. Kusini imepakana na Maiko Malinga. Mashariki imepakana na Maiko Malinga. Magharibi imepakana Eddy Myovela. Kama inavyoonyeshwa katika mchoro/ramani hapa kulia.	
<b>Saini:</b> ..... <b>Anuari S.L.P: 106, Iringa</b> <b>Wadhifa: Mwenyekiti wa Kijiji</b>  <b>Jina kamili: NOA ENOCK KABINDA</b>  <b>Saini:</b> ..... <b>Anuari S.L.P: 106, Iringa</b> <b>Wadhifa: Afisa Mtendaji wa Kijiji</b>  <b>2. Wamiliki (Wakazi)</b> <b>Jina</b> ..... <b>Saini/dole gumba</b> ..... <b>PICHA</b> ..... <b>Sailoni Maiko Malinga</b> .....  <b>Jina</b> ..... <b>Saini/dole gumba</b> ..... <b>PICHA</b> ..... <b>Maria Amsoni Mgayavanu</b> .....  <b>3. Imegongwa Lakiri ya Halmashauri ya Wilaya ya Iringa na kusainiwa leo Tarehe</b> ..... <b>Mwezi</b> ..... <b>Mwaka 2016</b> <b>Jina: GEOFREY REUBEN KALUWA</b> <b>Saini:</b> ..... <b>Wadhifa: Afisa Ardhi Mteule wa Wilaya</b>	

A photograph of two women, likely from an African country, wearing traditional headwraps and patterned clothing. The woman in the foreground is smiling slightly and looking towards the camera. The woman behind her is also looking towards the camera. The background is a blurred outdoor setting with green foliage and a grey wall.

## — MAST DEMONSTRATION