

FIG WORKING WEEK 2019

22-26 April, Hanoi, Vietnam

Presented by the FIG Working Week 2019,
April 22-26, 2019 in Hanoi, Vietnam

"Geospatial Information for a Smarter Life
and Environmental Resilience"



ORGANISED BY



PLATINUM SPONSORS



The Role of the “Fit-for-Purpose” Approach in the REILA Land Administration Project in Ethiopia

Bernd Eversmann, Technical Director Land, NIRAS International Consulting



ORGANISED BY



FIG Working Week 2019
22-26 April, Hanoi Vietnam

PLATINUM SPONSORS



Outline

- Introduction to NIRAS and the REILA Project
- Fit-for-purpose: Aspects of contextualization in Ethiopia?
- How does the approach scale in Ethiopia?



NIRAS International Consulting



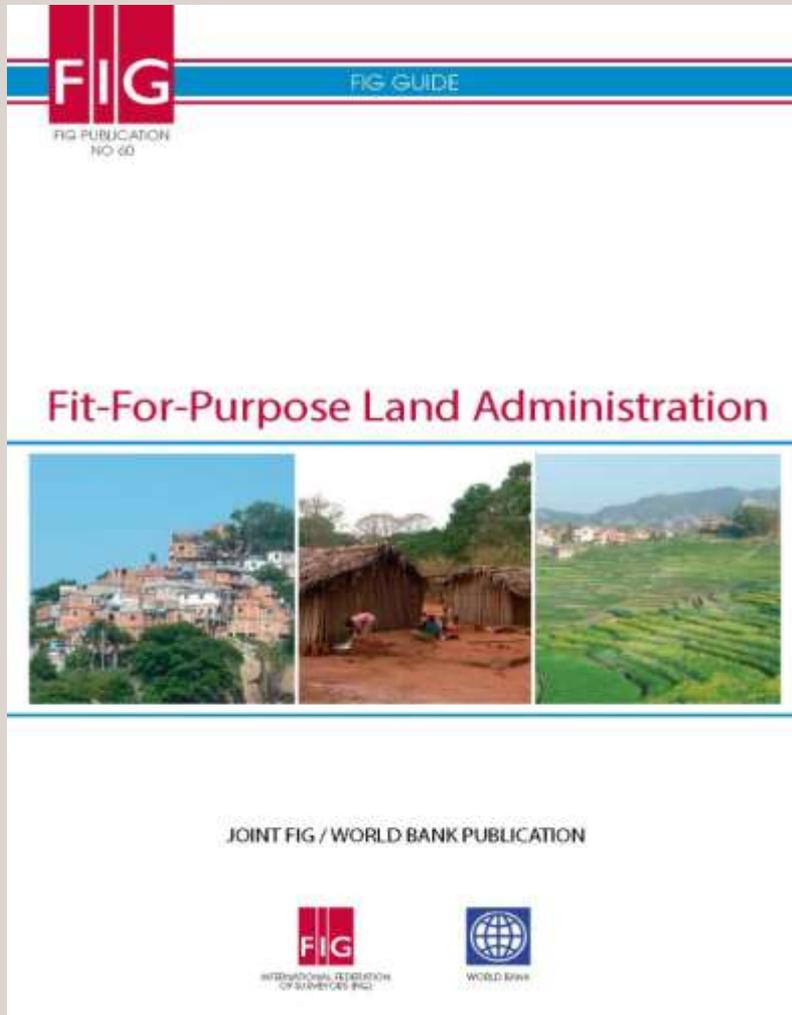
In 2018, more than 300 in-house staff

Offices in Europe, Asia, Oceania, Latin America and Africa

300 projects with > 1500 project staff members



2014: FIG publication



Case: Land Registration and Cadastral Mapping in Ethiopia

Over the past 13 years, Ethiopia has had much success in completing "1st level certification" of over 12 million rural households' land holdings. This has involved registering the rights of these households and issuing books of holdings: "Green books" listing holders' names, approximate parcel areas and neighbours' names. However, no maps have been produced, as parcel boundaries have not been surveyed. Unit costs in this process was about 1 USD per parcel.

Trials for cadastral mapping were conducted using 40 cm resolution orthorectified aerial photographs captured and processed by the Ethiopian Mapping Agency (EMA). A3 size printed field map sheets at a scale of 1:2,000 were typically used. In the trial, the 'General boundaries' principles were applied to demarcate parcel boundaries. The surveyors marked boundaries identified on the ground onto the orthophoto image and gave the land parcel a unique parcel identification number.

During the field work, parcel boundaries were initially drawn on the orthophotos using pencils. The para-surveyor drew the boundary lines on the field map sheet after confirmation of the boundary by the owner of the subject parcel and the neighbouring holders, facilitated by the Land Administration & Use Committee member. Then a unique parcel identification number was allocated for the demarcated parcel.

As soon as the para-surveyor assigns a unique parcel identification number to the demarcated parcel, he or she communicates with the field data recorder

for textual data recording. Owner and parcel details are recorded on the field form prepared for this purpose. Disputes and encumbrances, if any, are recorded by the field data recorder immediately after parcel number allocation.

Office work includes scanning, geo referencing and digitising, attribute recording and quality control. Then a public inspection is completed. After any corrections the parcel maps can be produced: "2nd level certification". Unit costs are estimated as less than 8 USD per parcel.



Boundary delineation, Ethiopia.

Source: Zerfu Hailu (NIRAS Project) and David Harris

“Fit-for-purpose”

The Situation

- Increasing Pressure on Land (population growth, climate change, ...)
- Current Land Administration Solutions don't scale well

FFP Principles

- **Flexibility:** Scale and accuracy relate to the purpose
- **Basic purposes:** Include all land; provide secure tenure for all
- **General boundaries** rather than fixed boundaries [...] especially in rural and semi-urban areas.
- **Aerial imageries rather than field surveys** (3-5 times cheaper than field surveys)
- **Incremental Improvement:** Opportunities for updating and improvement
- **Cost-effective:** Unit costs often range between 6 and 10 USD per parcel. Rwanda and Ethiopia are show cases of the method.



As little as possible,
as much as necessary.

Source: FIG, GLTN

The REILA Project

In Ethiopia

- REILA = **R**esponsible & **I**nnovative **L**and **A**dministration
- Bilaterally agreed project
- Main Government partners:
Ministry of Agriculture, Mapping agency
- Timeframe: July 2011 - June 2017 (first phase)
2017 – 2021 (2nd phase)
- Budget: 12,800,000 Euro contribution by Finland
- Project area: Federal level, Benishangul-Gumuz & Amhara Regions plus trial districts in 3 additional Regions (Tigray, Oromyia and SNNP)
- The purpose of the project is to contribute towards an **improved, transparent and appropriate land administration system** in Ethiopia.



FFP implementation at scale needs skilled staff

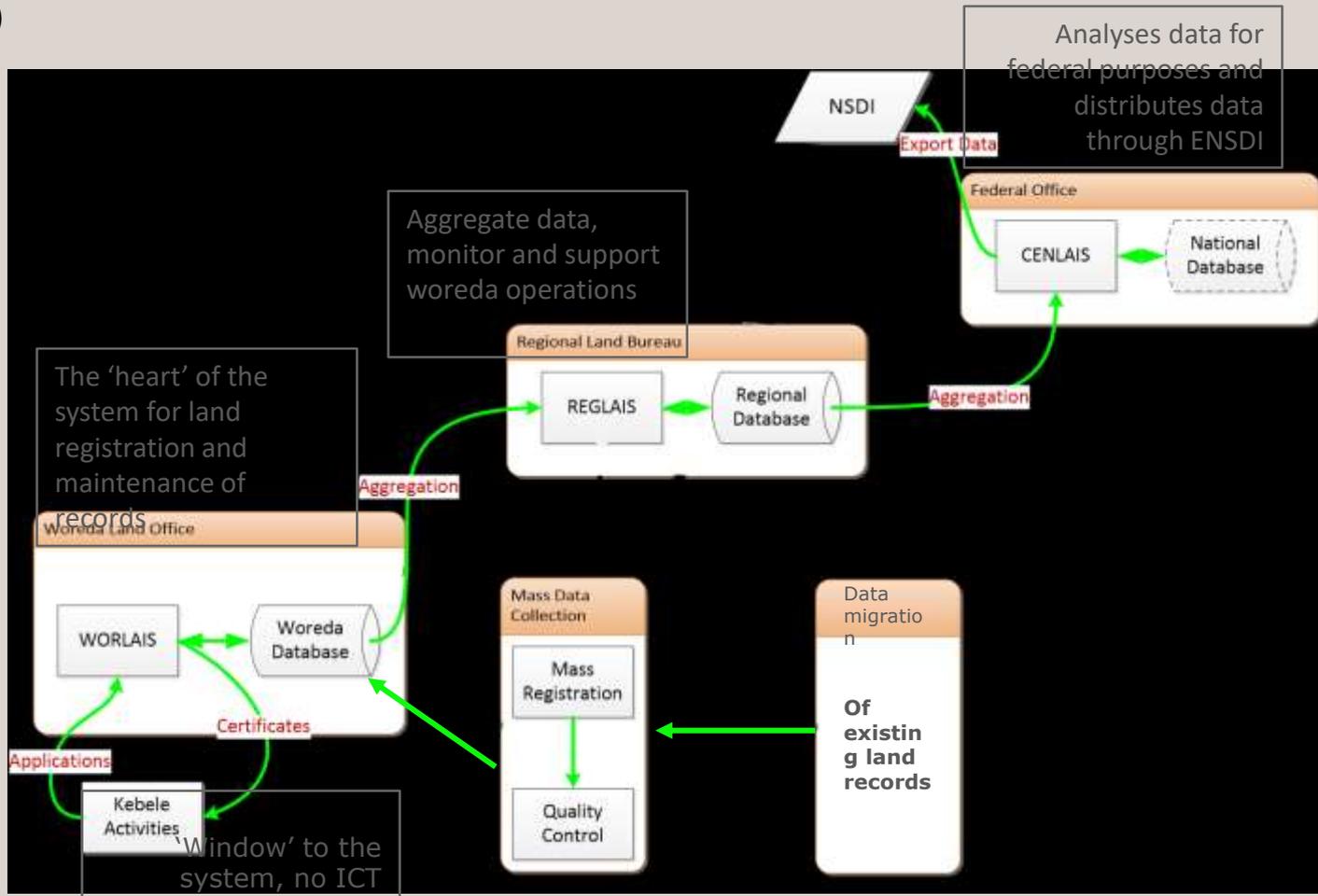
AGR CLR3 01 0514 Develop Cadastre and Land Registration Action Plan	AGR CLR3 02 0514 Organize, Check and Maintain Equipment and	AGR CLR3 03 0514 Operate Surveying Equipment
AGR CLR3 04 0514 Undertake a Site Assessment to Conduct	AGR CLR3 05 0514 Collect and Set-out Basic Surveying Data	AGR CLR3 06 0514 Demarcate Land Parcel Boundary Using
AGR CLR3 07 0514 Perform Surveying Computations	AGR CLR3 08 0514 Operate GIS Software to Spatial Input Analysis	AGR CLR3 09 0514 Read and Interpret Basic Image Data
AGR CLR3 10 0514 Produce Digital Data	AGR CLR3 11 0514 Prepare and Produce Maps from Orthophoto	AGR CLR3 12 0514 Perform Adjudication, Registration and Certification Activities for
AGR CLR3 13 0514 Develop and Use Advanced Spreadsheets	AGR CLR3 14 0514 Store and Retrieve Spatial and Non Spatial Data	AGR CLR3 15 0514 Operate Database Management System
AGR CLR3 16 0514 Perform Tenure Documentation	AGR CLR3 17 0514 Complete Database Back-Up and Recover	AGR CLR3 18 0514 Take Instruction in Relation Transaction
AGR CLR3 19 0514 Deal with Land Holding Conflict	AGR CLR3 20 0514 Process Applications and Respond to Client's Legal	AGR CLR3 21 0514 Maintain and Monitor Environmental Work
AGR CLR3 22 0514 Monitor Implementation of Work Plan/Activities	AGR CLR3 23 0514 Apply Quality Control	AGR CLR3 24 0514 Lead Workplace Communication
AGR CLR3 25 0514 Lead Small Teams	AGR CLR3 26 0514 Improve Business Practice	AGR CLR3 27 0514 Maintain Quality System and Continuous Improvement Processes

Duration 1035 hours



Long-term Maintenance

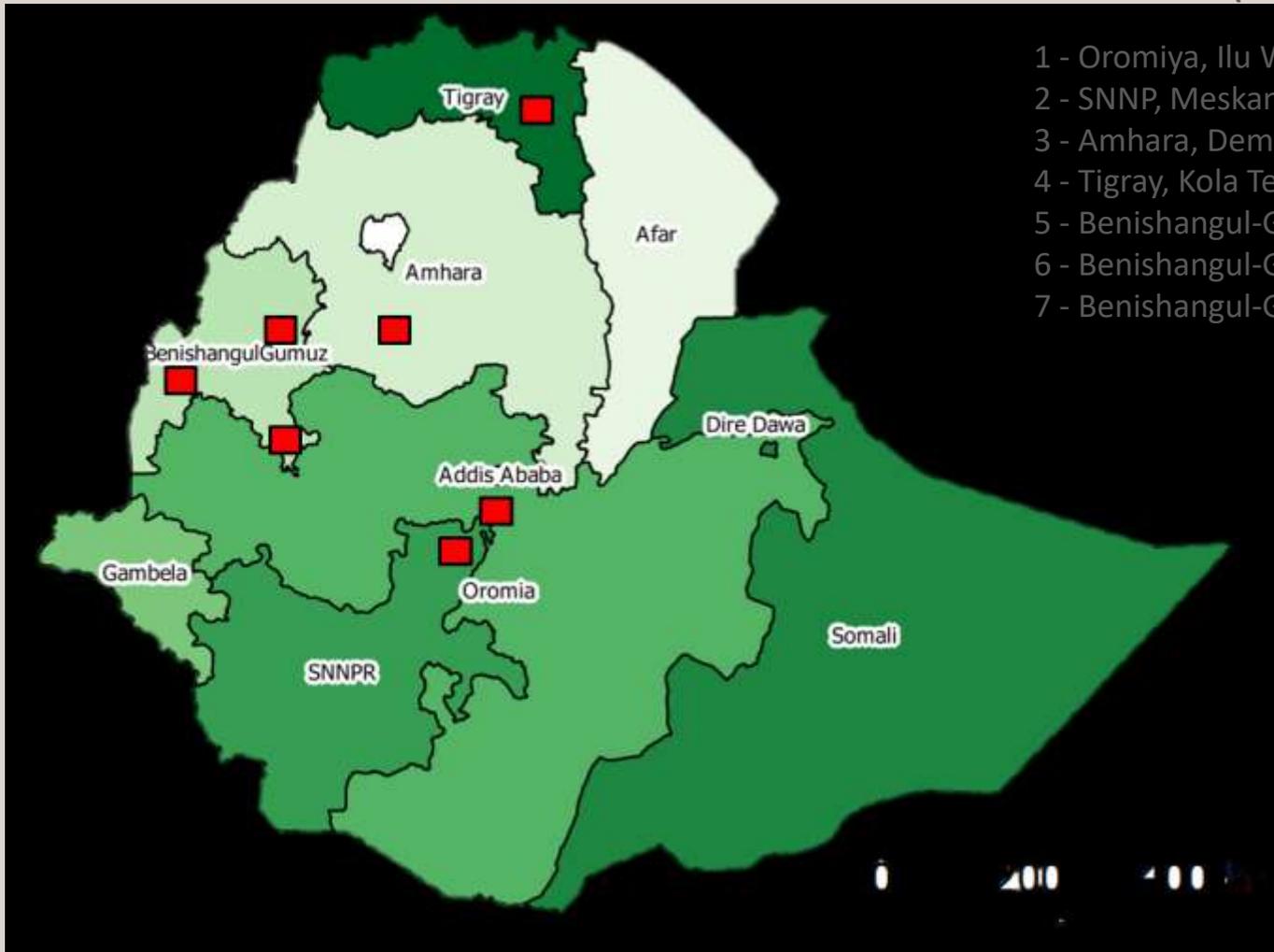
The National Rural Land Administration Information System (NRLAIS)



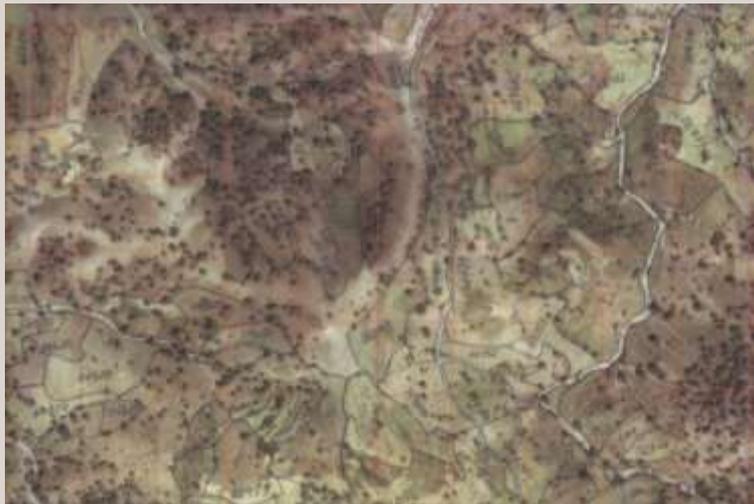
Method development: Imagery Trials

Trial Districts (Woredas)

- 1 - Oromiya, Ilu Woreda
- 2 - SNNP, Meskan Woreda
- 3 - Amhara, Dembecha Woreda
- 4 - Tigray, Kola Temben Woreda
- 5 - Benishangul-Gumuz, Bambasi Woreda
- 6 - Benishangul-Gumuz, Bullen Woreda
- 7 - Benishangul-Gumuz, Kamashi Woreda

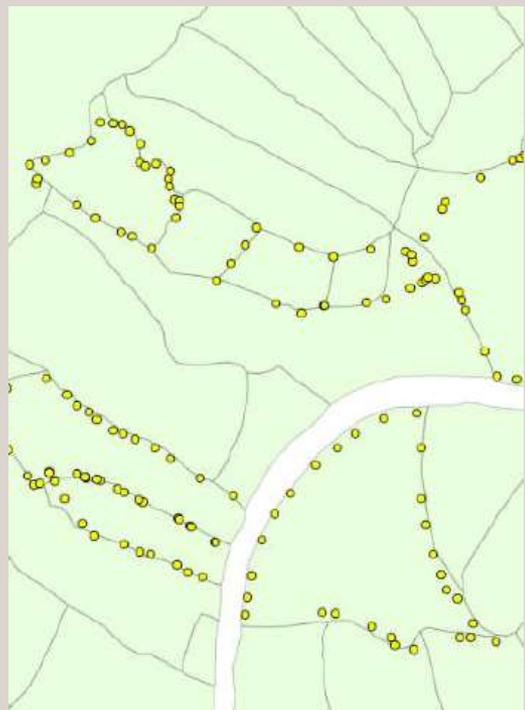


Contextualisation of the Approach



Different topography, land use patterns, land cover, legislation ...

Contextualisation of the Approach II



Top: Postmarking in rural areas without man-made structures

Left: Comparison between precision GPS and boundaries drawn on the orthophoto

Top: The same area in Belo Jiganfoye, Benishangul-Gumuz on 3rd April (top) and 7th Sept (bottom) 2013.

Public Information and Awareness



Higher level officials



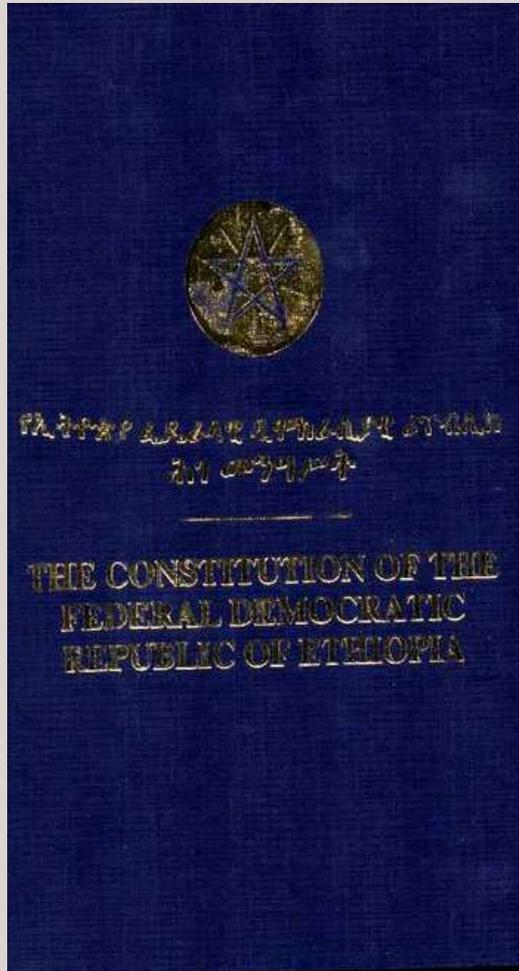
Land holders



Region-, zone-, woreda-, kebele staff



Land administration committee



The Legal Framework

- Federal constitution
- Federal proclamation No. 456
- AM - Regional constitution
- AM - Land administration & Use policy and strategy
- AM – Proclamation No 133/2005
- AM- Land administration and use regulation
- AM–Land administration and use directives
- BG - Regional constitution
- BG - Land administration & Use policy and strategy
- BG - Land administration proclamation
- BG- Land administration and use regulation
- BG–Land administration and use directives

⇒ **Alignment with existing legal framework**

⇒ **Contributions to federal communication and outreach strategy**

Training of “para-surveyors”

For 2 weeks in the office (GIS training) and in the field (data collection)



The Field Team



- Surveyor (drawing the parcel borders in the image)
- Field data recorder (registering all parcel information)
- Team leader (supervision, reporting and quality control)
- Kebele Land Administration Committee member (legal representative)

Transparency during the Fieldwork

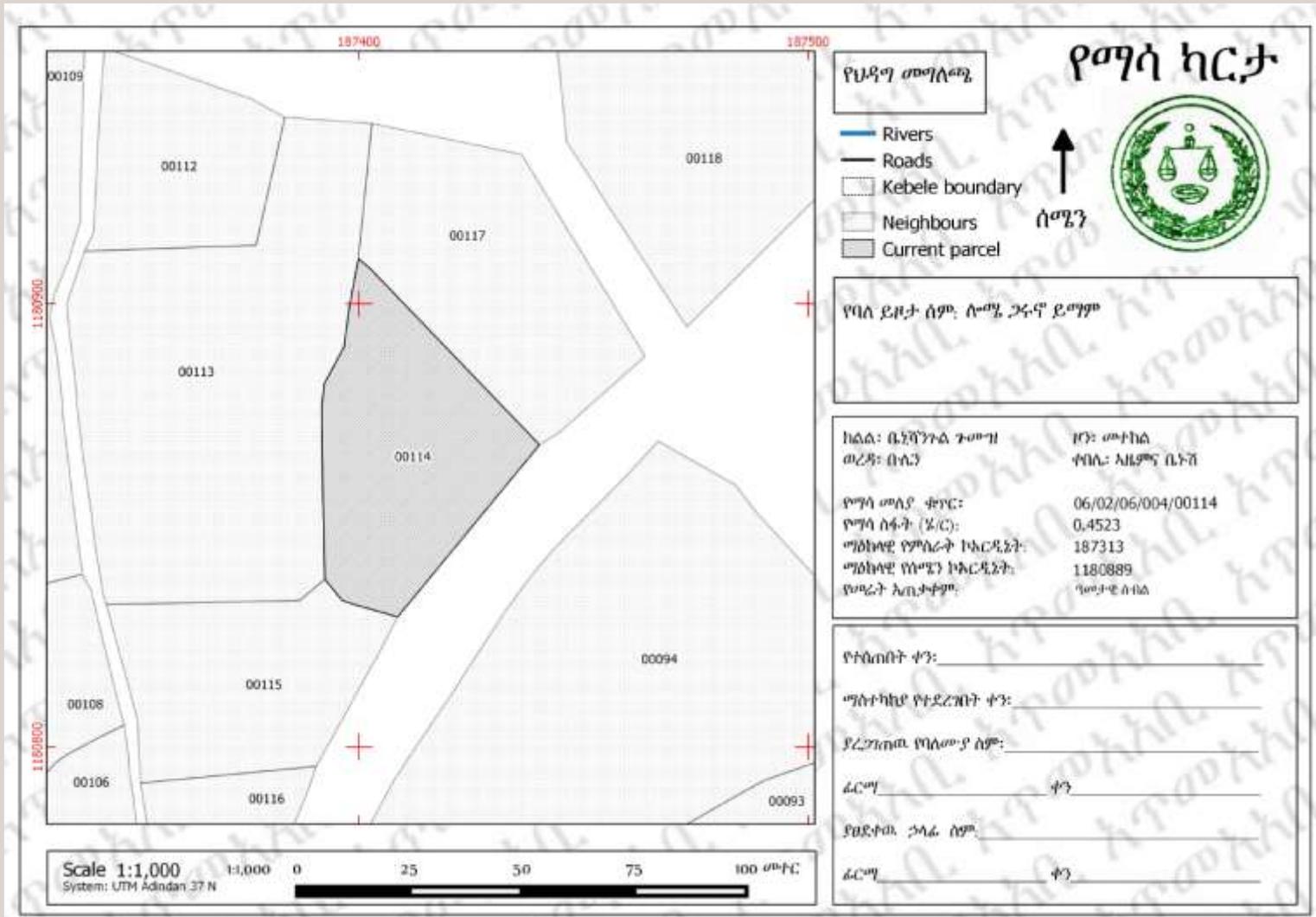


Farmers participate in parcel boundary identification

Public Display

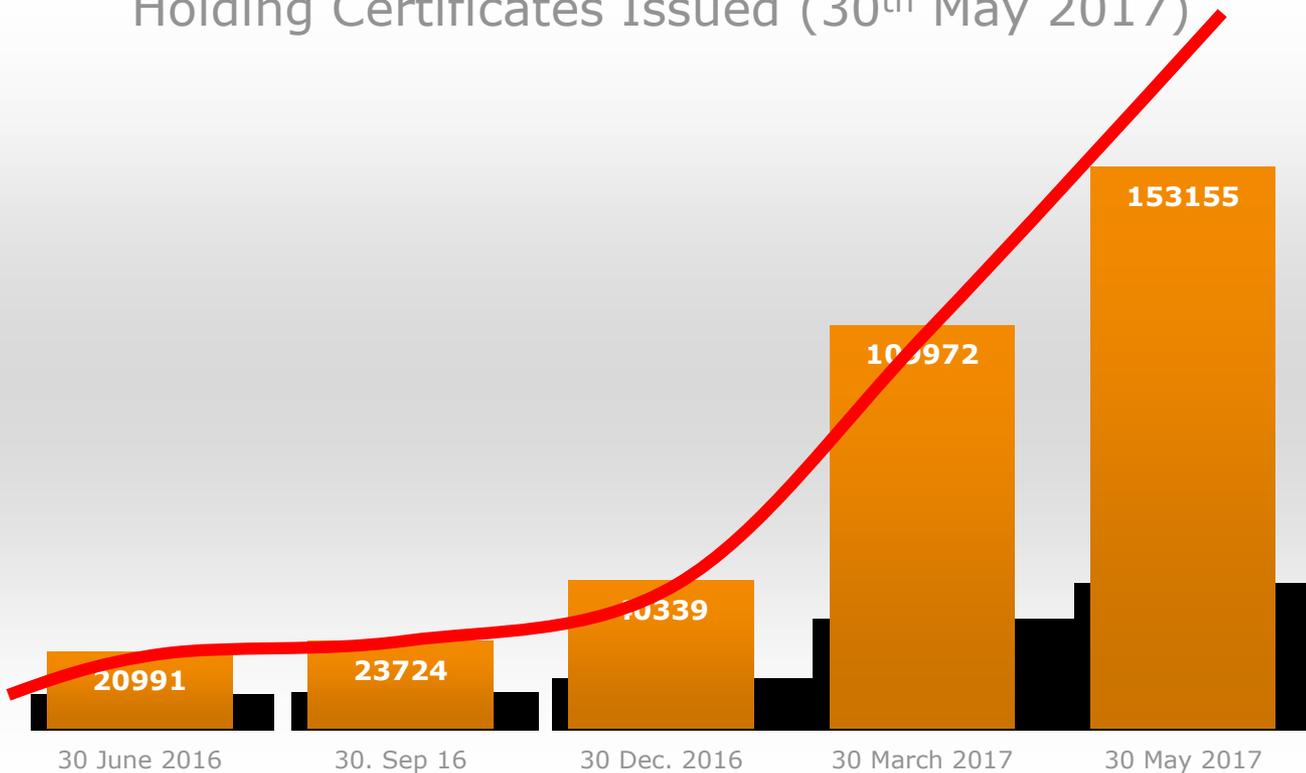


Results → Issued Parcel Maps



2nd Level Certification Supported by REILA (2 Regions)

Holding Certificates Issued (30th May 2017)



2nd Level Certification implemented at
Scale (GoE, WB, DFID, Finland ...)

> 14,000,000
land certificates issued to farmers

Conclusions

- Contextualisation or adaptation of the FFP approach is important and takes time
- The FFP approach works and scales well in Ethiopia
- It played and plays a big role in bringing actors together, agreeing on a joint approach and actually having a chance to complete systematic titling of rural land in a populous, large country like Ethiopia.

|
cảm ơn bạn

Thank you

Amasegenalehu

Vielen Dank

ORGANISED BY



FIG Working Week 2019
22-26 April, Hanoi Vietnam

PLATINUM SPONSORS

