Making FFP Land Administration Compelling & Work in Practice

Dr Robin McLaren, Scotland

Prof Stig Enemark, Denmark

CADASTRE IN A DIGITAL WORLD – NORDIC & GLOBAL PERSPECTIVES

Bergen, Norway 24 – 28 September 2018

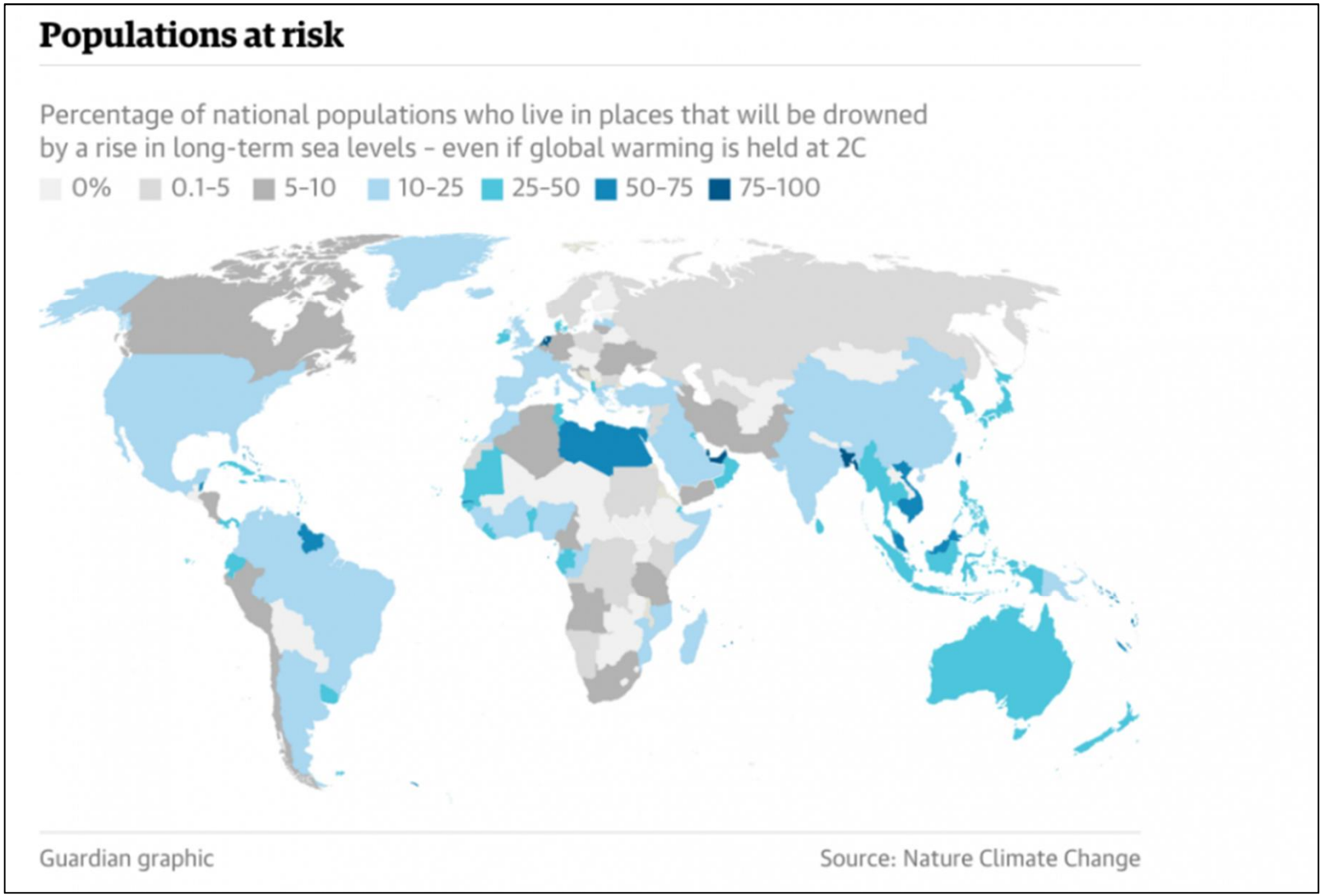
Reality around the World

In our world, one in eight people live in slums. In total, around a billion people live in slum conditions today, most trapped in poverty.

Source: https://unhabitat.org/slum-almanac-2015-2016/

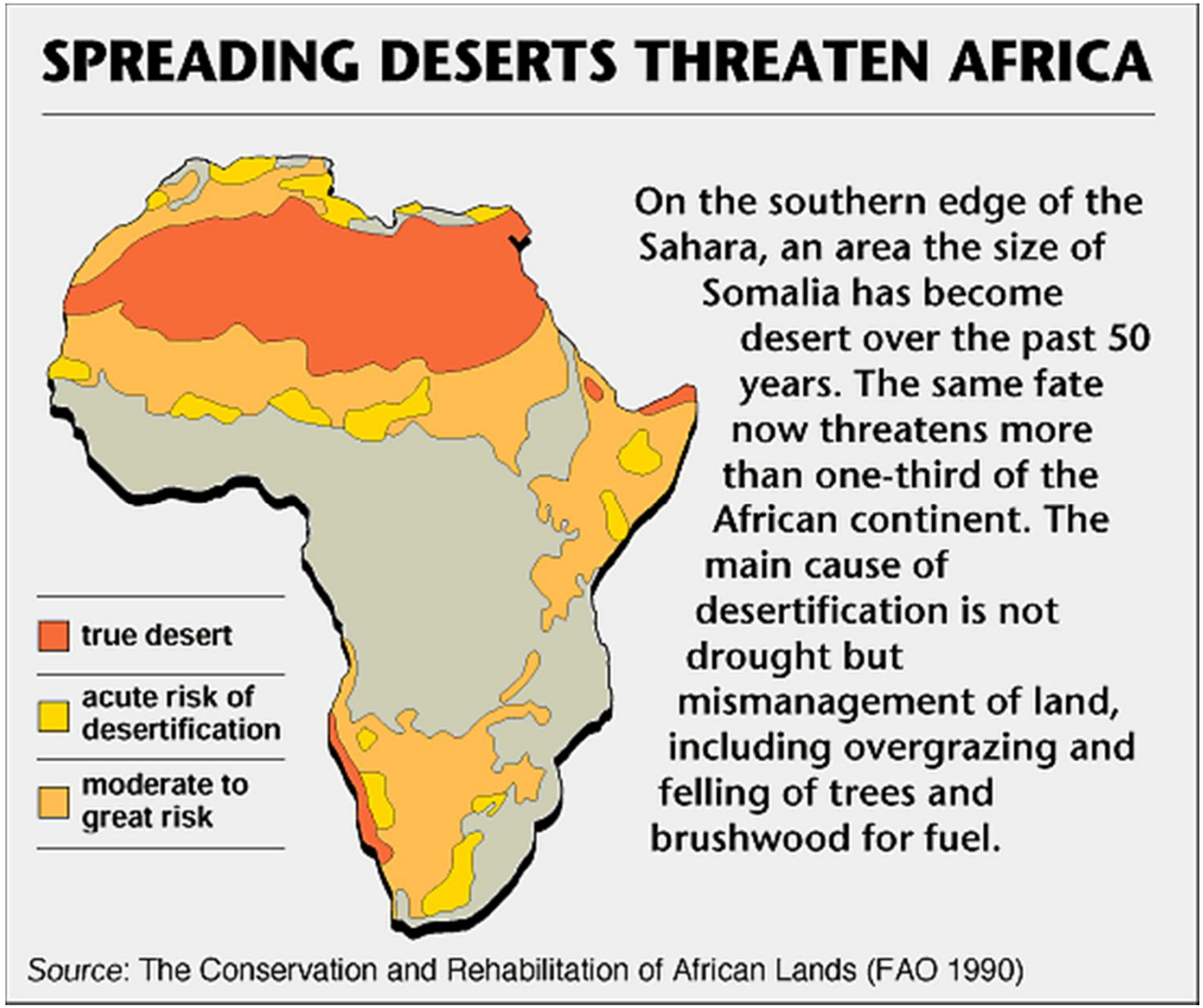
Source: Know Edge Ltd

Reality around the World



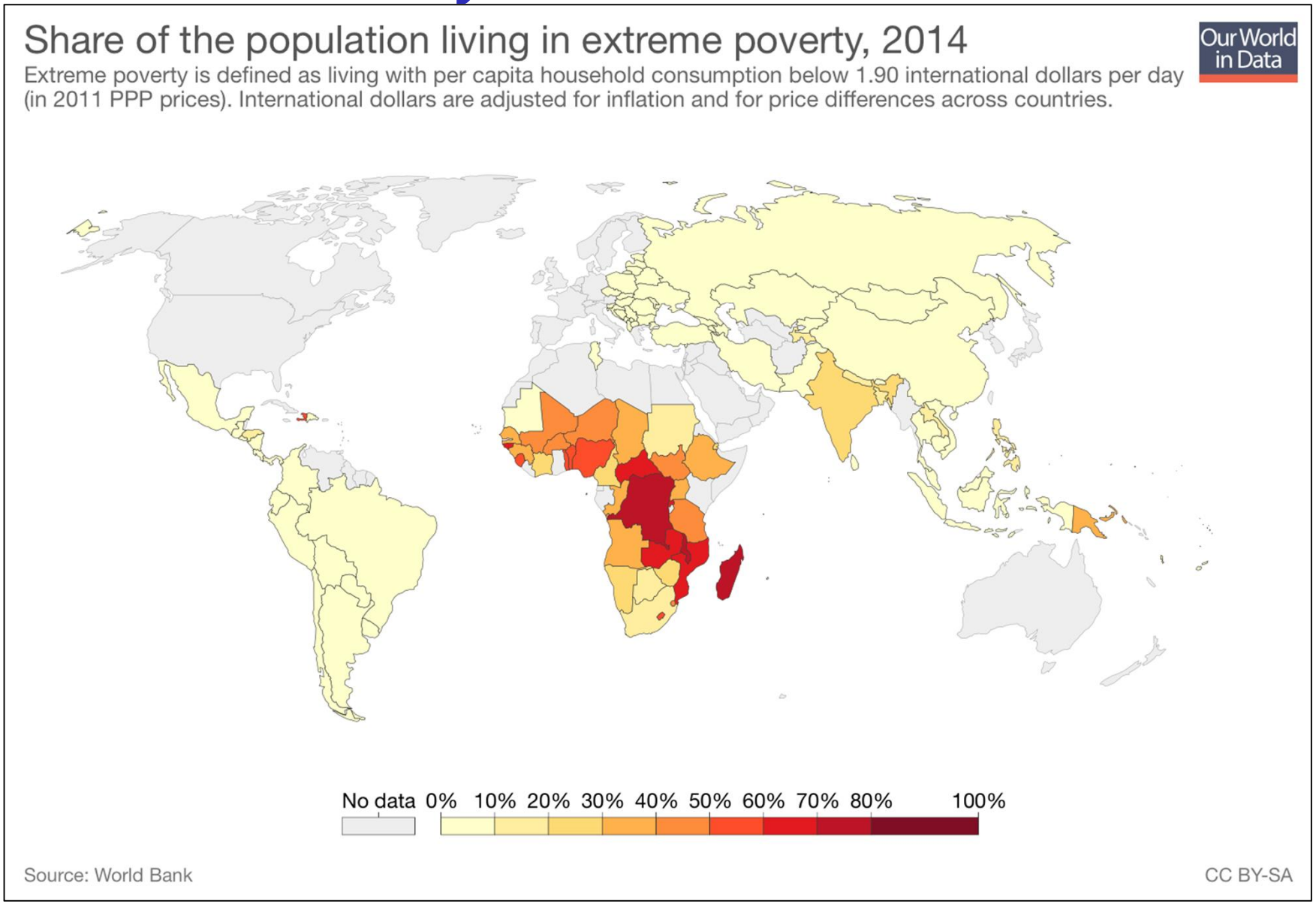
Source: https://www.newsweek.com/sea-level-rise-will-last-10000-years-424240

Reality around the World



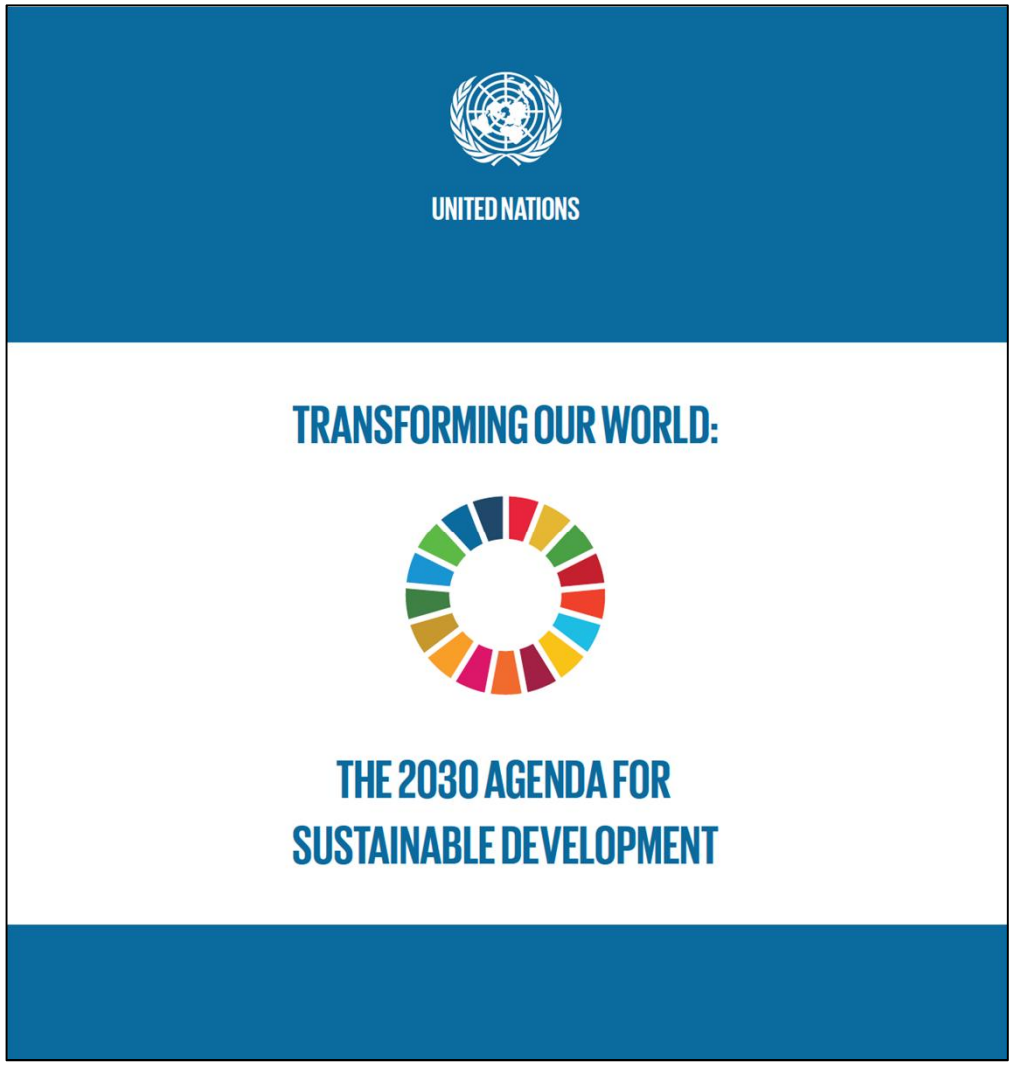
Source: https://spring2015finalpereira.wordpress.com/2015/05/13/environment-of-north-africa-southwest-asia/

Reality around the World



Source: https://ourworldindata.org/extreme-poverty

The 2030 Agenda



Source:https://sustainabledevelopment.un.org/content/documents/21252030%20Agenda%20for%20Sustainable%20Development%20web.pdf

SUSTAINABLE DEVELOPMENT GOALS

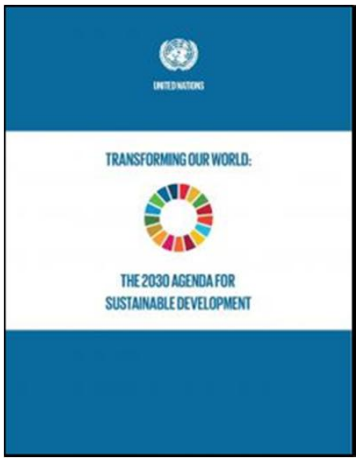
17 Goals, 169 targets, and 230 indicators

Source: https://sustainabledevelopment.un.org/?menu=1300

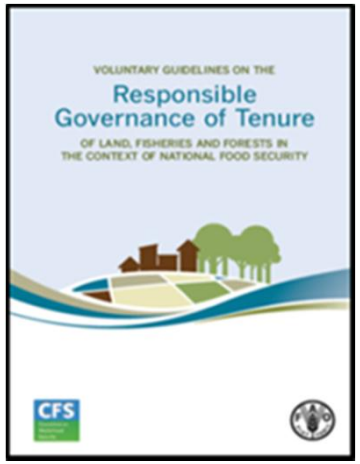
- UN member states are committed to use the goals to frame their agenda and policies over the next 15 years (2016-2030).
- The goals are action oriented, global in nature and universally applicable.
- Targets are defined as aspirational global targets, with each government setting its own national targets guided by the global level of ambition, but taking into account national circumstances.
- The goals and targets integrate economic, social and environmental aspects and recognise their interlinkages in achieving sustainable development in all its dimensions.

The Wider Global Agenda

Sustainable Development Goals

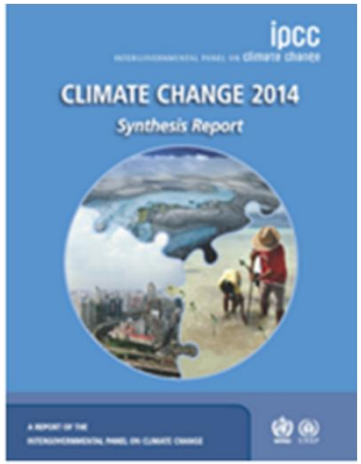


Applying responsible governance of tenure



Promoting human rights and gender equity

Climate change mitigation and adaption



Rapid urbanisation and slum upgrading

- Many of the SDGs will not be achieved without the global land governance, administration and management issues being resolved at scale.
- Solutions to the overall global land issues relate to alleviation of:
  - poverty, social inclusion and stability, investments and economic development, and environmental protection and natural resource management.

SUSTAINABLE DEVELOPMENT GOALS

Goals directly underpinned by solutions to global land issues

Source: https://sustainabledevelopment.un.org/?menu=1300

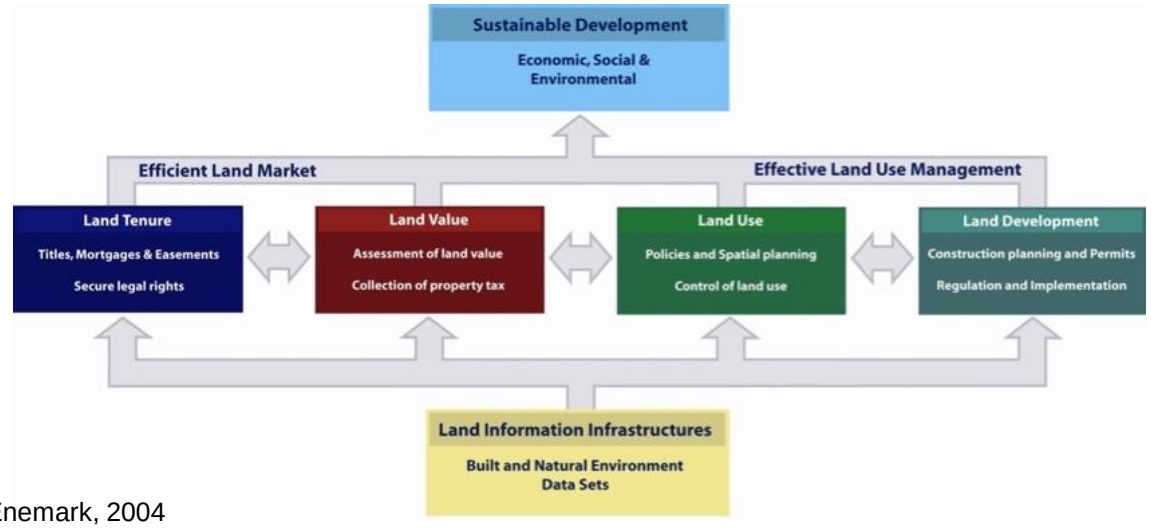
Increased Tenure Security can:

- Help overcome land, housing and livelihood inequalities.
- Promote equality, inclusion and the realization of human rights.
- Promote food security, entrepreneurship and sustainable development.
- Facilitate provision of essential facilities, services and quality of life.
- Reduce physical insecurity and conflict.
- Reduce forced evictions, corruption and land grabbing.
- Overcome wide-spread discrimination against women.
- Create options for youths.

Source: https://www.slideshare.net/LandGLTN/key-concepts-approaches-and-tools-for-strengthening-land-tenure-security

Importance of Land Administration

These goals and targets will never be achieved without having good land governance and well-functioning countrywide land administration systems in place across the globe, providing secure tenure for all and enabling management of the use of all land.

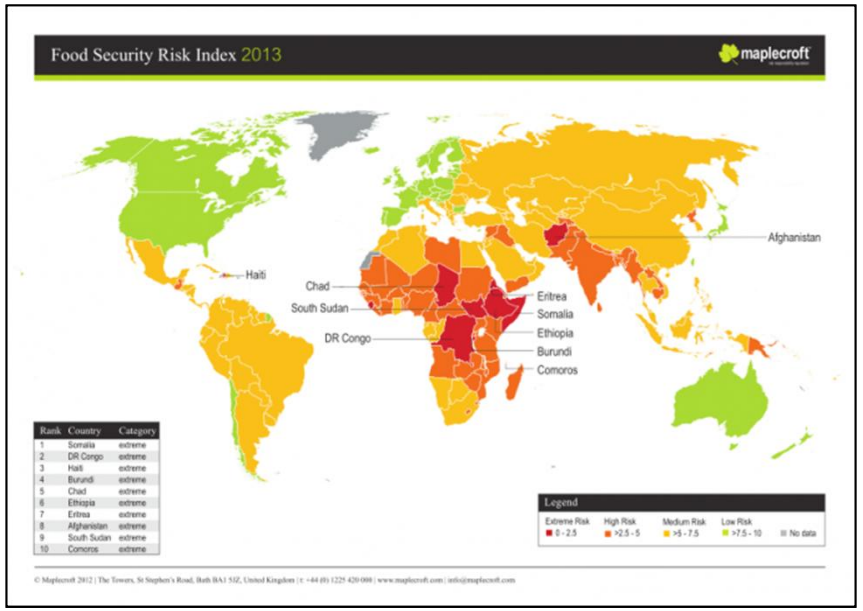


Source: Stig Enemark, 2004

Current Land Administration Policies & Solutions are Not Scalable & Failing Developing Countries

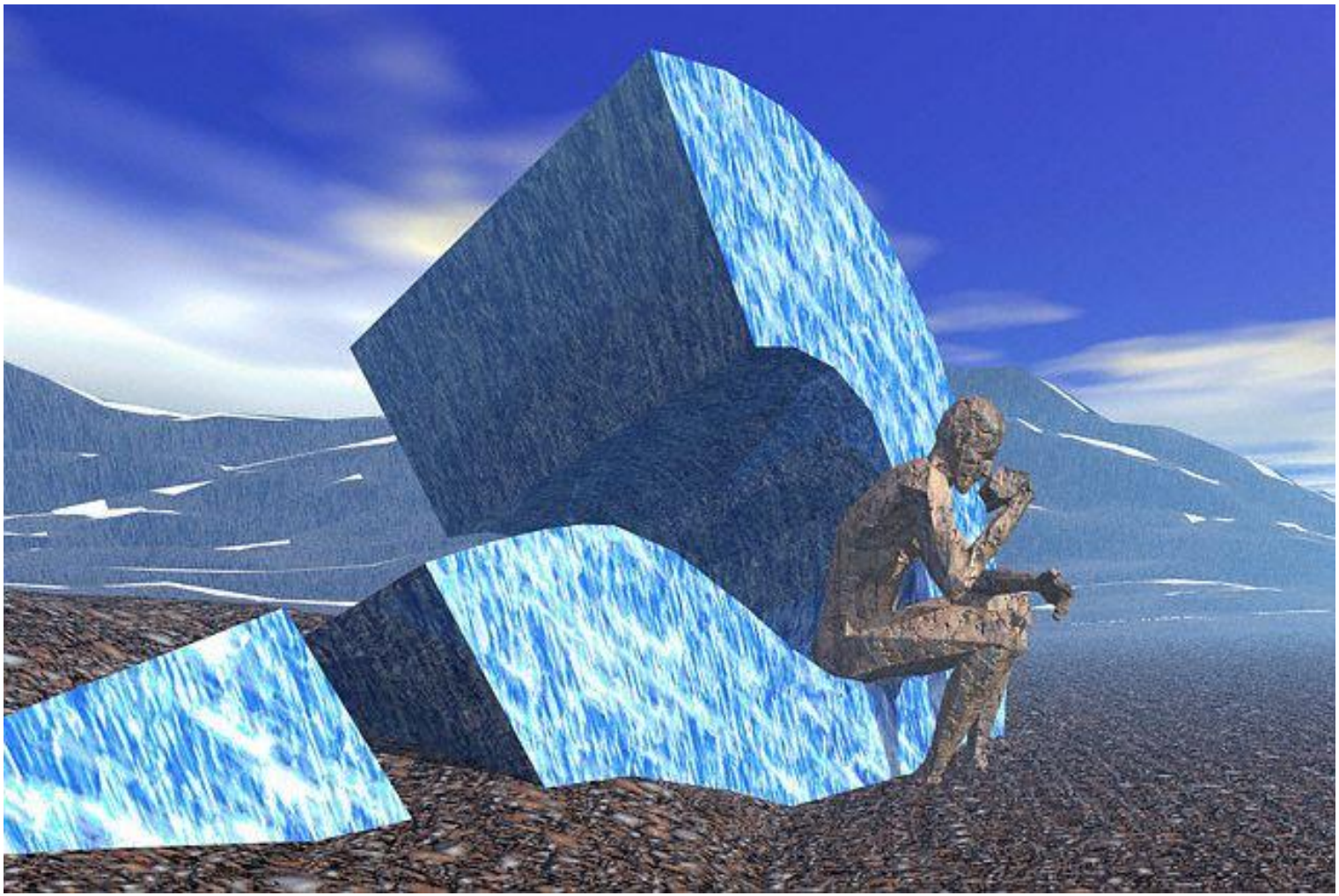
70% world's population have no access to formal Land Administration services

Only 25% of the 6 billion land parcels worldwide are formally registered and have robust security of tenure.



Source: http://reliefweb.int/map/world/world-food-security-risk-index-2013

Is there a Scalable Solution?



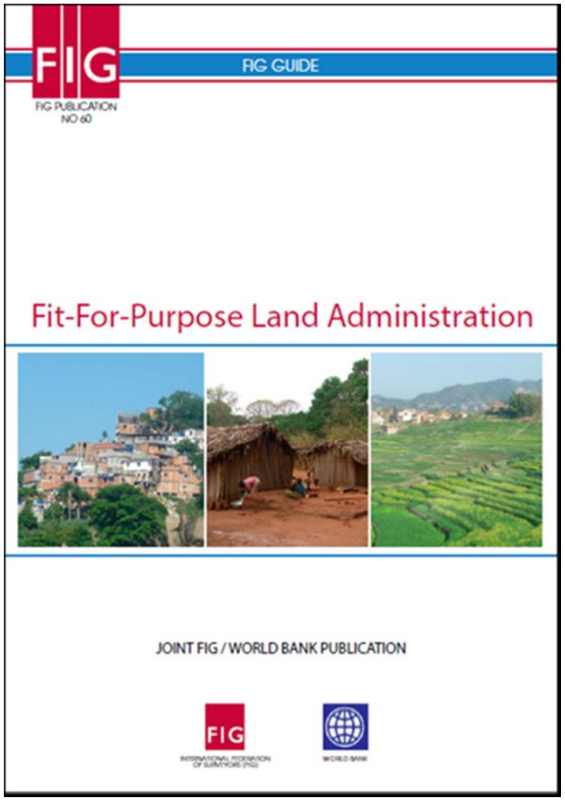
Yes – There is a Solution for Land Administration

New solutions are required that can deliver security of tenure for all, are affordable and can be quickly developed and incrementally improved over time.

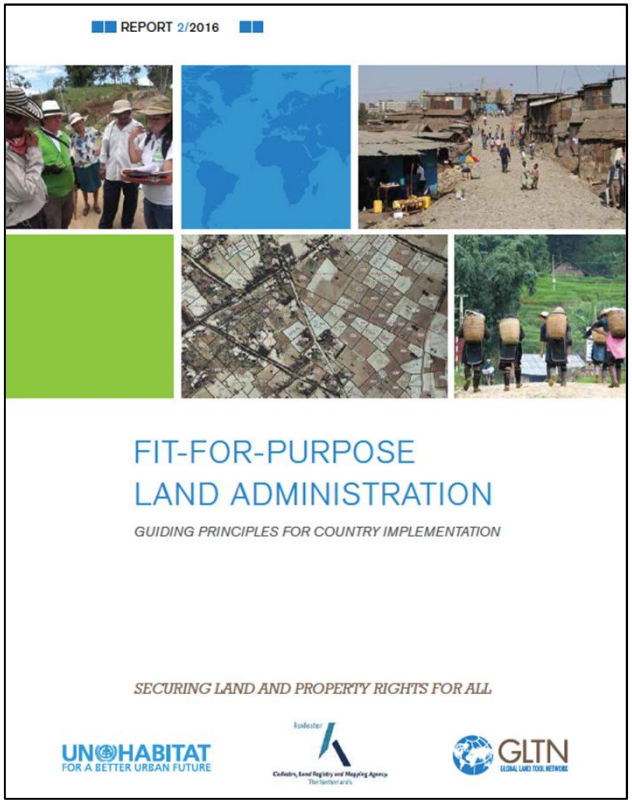
The FFP approach to land administration has emerged to meet these simple, but challenging requirements.

Fit-For-Purpose Land Administration

2014



2016



FIG

WORLD BANK

GLTN
GLOBAL LAND TOOL NETWORK

The Wider Global Agenda

Promoting human rights and gender equity

Applying responsible governance of tenure

Climate change mitigation and adaption

Rapid urbanisation and slum upgrading

Applying the social tenure domain model
Recording legitimate land rights

Building Fit-For-Purpose LA systems - fast, affordable and upgradeable.

What is FFP Land Administration?

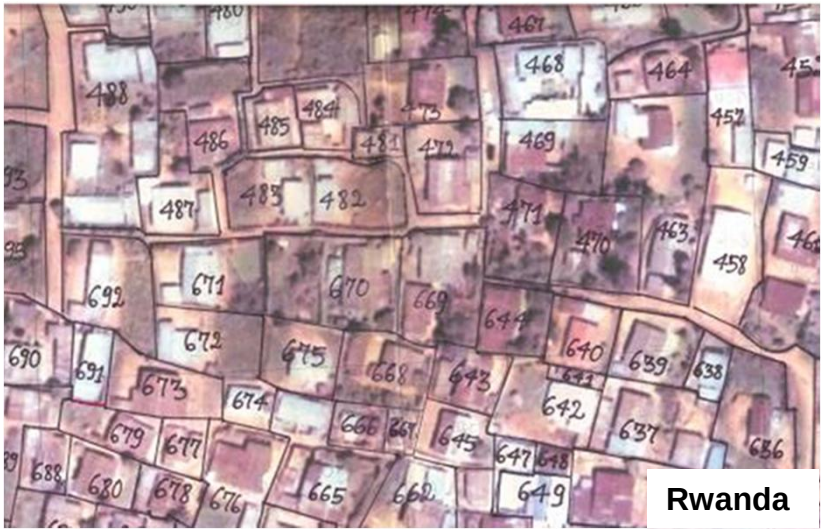
Source: Stig Enemark

Land administration is basically about people

Land tenure is the manner of holding rights in land and occupancy of land.

Fit-For-Purpose – what is it ?

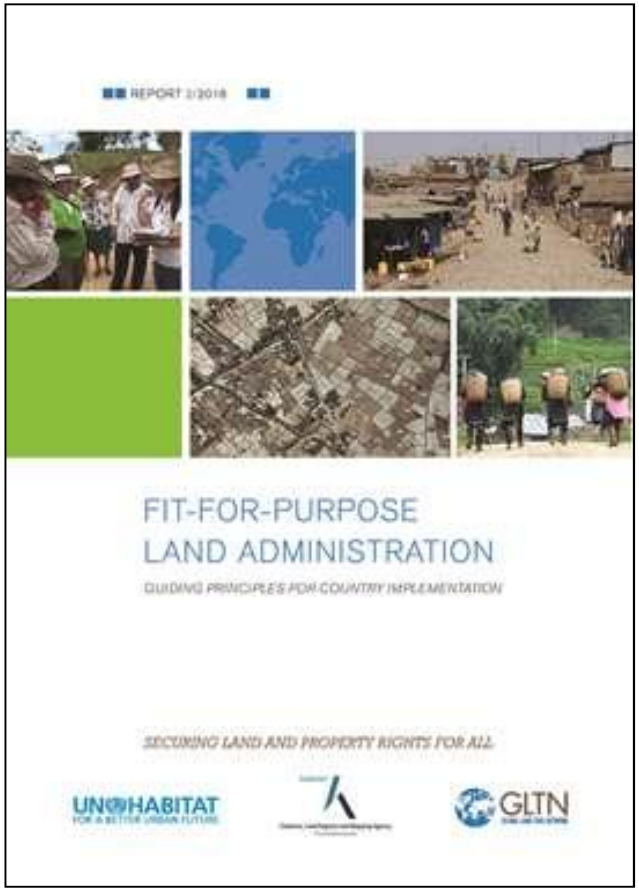
- **Fit-for-purpose:** The systems should be designed for managing current land issues – and not guided by high tech solutions and costly / time consuming field survey procedures.
- **Basic purposes:** Include all land; provide secure tenure for all; and control the use of land.
- **Flexibility:** Scale and accuracy relate to geography, density of development, and budgetary capacity
- **Incremental improvement:** Advanced Western style concepts may well be seen as the end target, but not as the point of entry.
- **Good practice:** Rwanda leads the way with about 10 million parcels demarcated and registered in about five years - unit costs of 6 USD per parcel

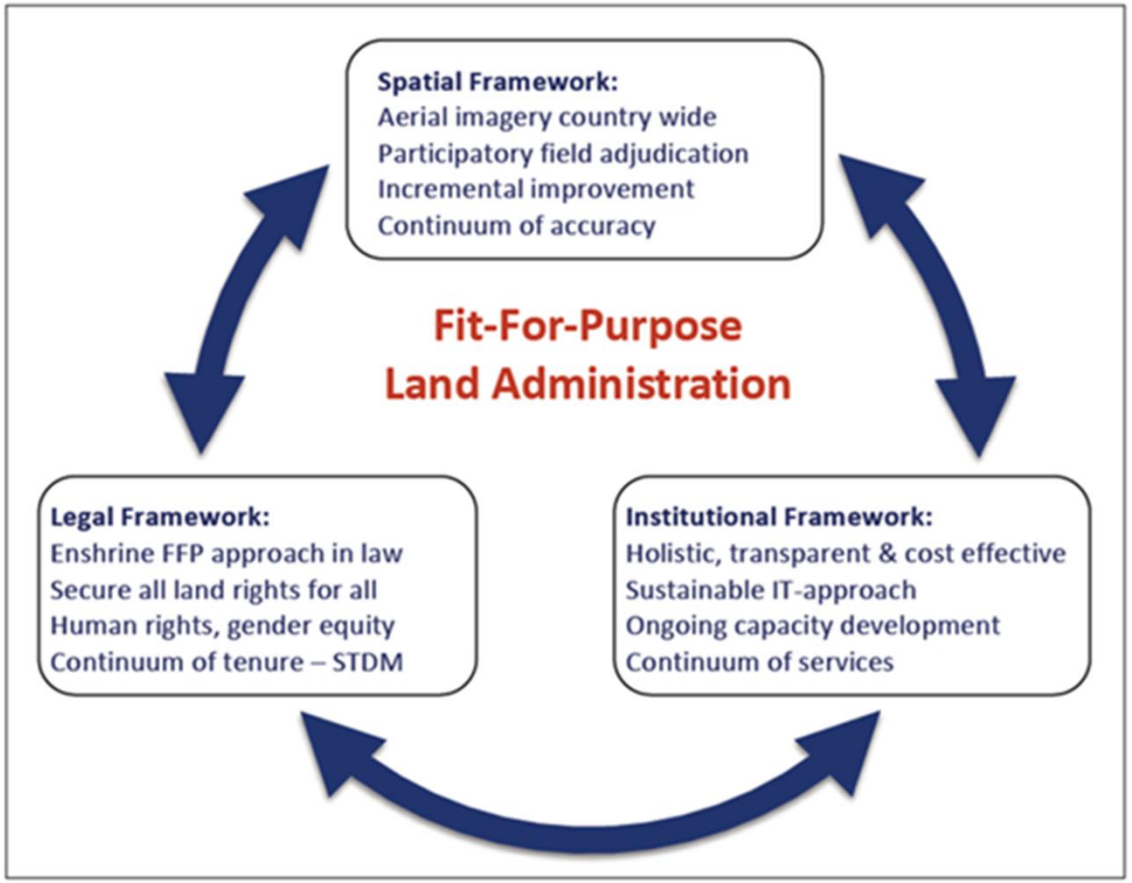


"As little as possible – as much as necessary"

Fit-For-Purpose Land Administration

Guiding Principles for Country Implementation



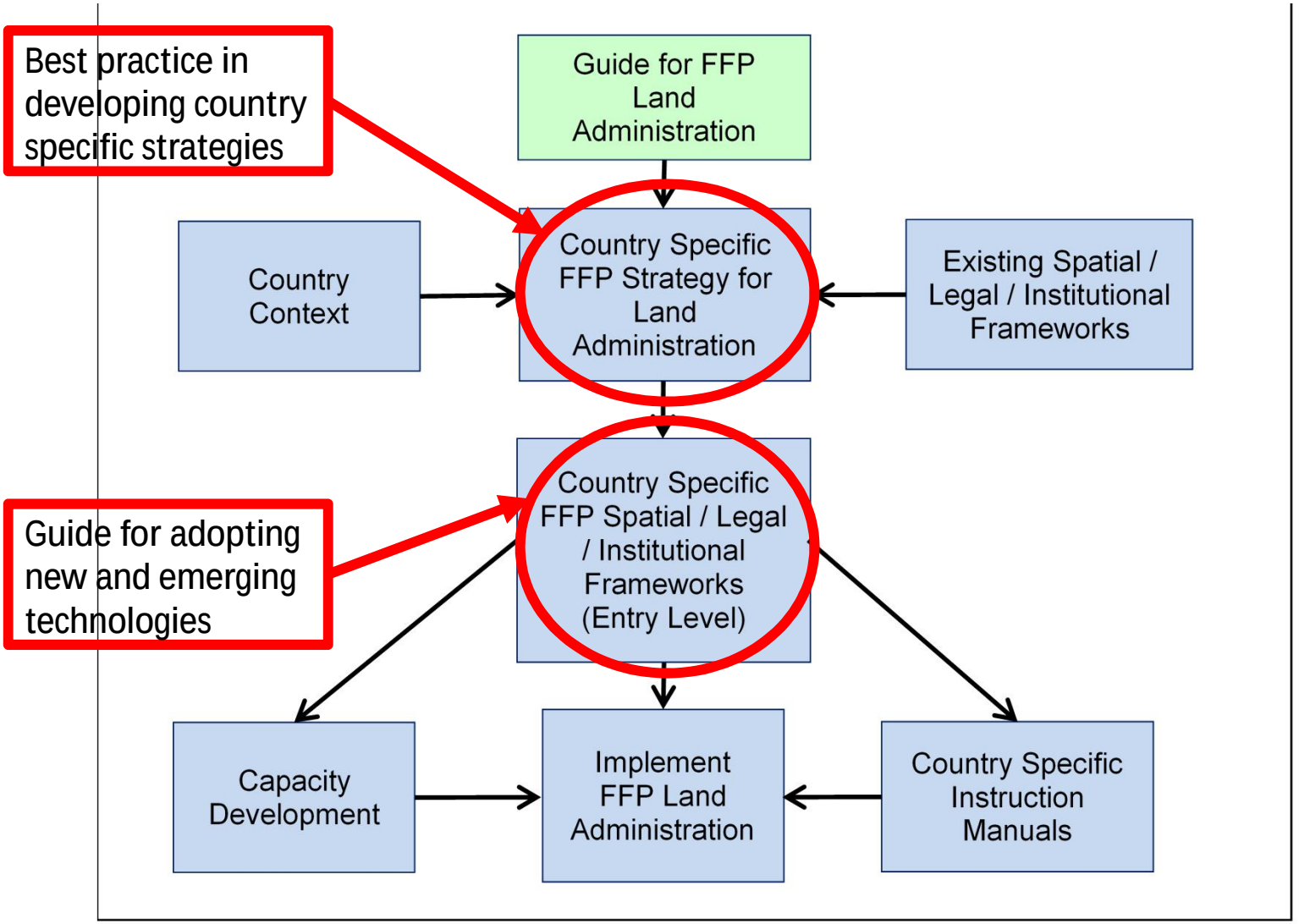


http://www.gltn.net/index.php/publications/publications/publications-list/send/2-gltn-documents/2332-fit-for-purpose-land-administration-guiding-principles-for-country-implementation

Fit-For-Purpose Land Administration

KEY PRINCIPLES		
Spatial Framework	**Legal Framework**	**Institutional Framework**
§ Visible (physical) boundaries rather than fixed boundaries § Aerial / satellite imagery rather than field surveys § Accuracy relates to the purpose rather than technical standards § Demands for updating and opportunities for upgrading and ongoing improvement	§ A flexible framework designed along administrative rather than judicial lines. § A continuum of tenure rather than just individual ownership § Flexible recordation rather than only one register § Ensuring gender equity for land and property rights.	§ Good land governance rather than bureaucratic barriers § Holistic institutional framework rather than sectorial siloes § Flexible IT approach rather than high-end technology solutions § Transparent land information with easy and affordable access for all

Use of Guide in Developing Country Specific Strategies for Implementation



Source: GLTN/UN-Habitat, 2016

World Bank Guide

New Technology and Emerging Trends: The State of Play for Land Administration

WORLD BANK GROUP

NORDIC TRUST FUND

This Guide has arisen from recognition by the WBG Senior Management of the need to improve the use of geospatial technology and information internally and within projects.

The purpose of this Guide is to provide designers of country-specific FFP Land Administration strategies with guidance on the current status of technology and emerging trends in land administration.

Full document URL:
https://www.conftool.com/landandpoverty2018/index.php/14-07-McLaren-186_ppt.pdf?page=downloadPaper&filename=14-07-McLaren-186_ppt.pdf&form_id=186&form_index=2&form_version=final

Fit-for-Purpose Land Administration Guide provides principles, but does not guide technology choice

FFP Land Admin. Guide does not answer questions such as:

- Which imagery (satellite, aerial or drone) and what resolution are appropriate?
- Should we continue with paper orthophotomaps to support mapping and adjudication participation? Or should we adopt mobile technologies?
- How does urban density influence our choice of survey technique?
- Do community mapping and rights adjudication tools have a role to play within formal land administration systems, and can they support mainstream activities?
- Is automatic extraction of linear and settlement features suitable for land administration?
- Are modern SMS or other mass media approaches appropriate to raise public awareness of land registration programs?
- What are the key technological gaps and emerging trends?

Using the Guide will support effective project-design and adoption of FFP principles

When should you use the Guide?

- This guide should be used during land administration project design, to inform the selection of approaches and FFP technologies.
- It may be useful to review throughout project life, i.e. to review alternative approaches.
- It may provide a useful briefing on diverse key concepts for land administration, such as customary tenure, National Spatial Data Infrastructure, etc.

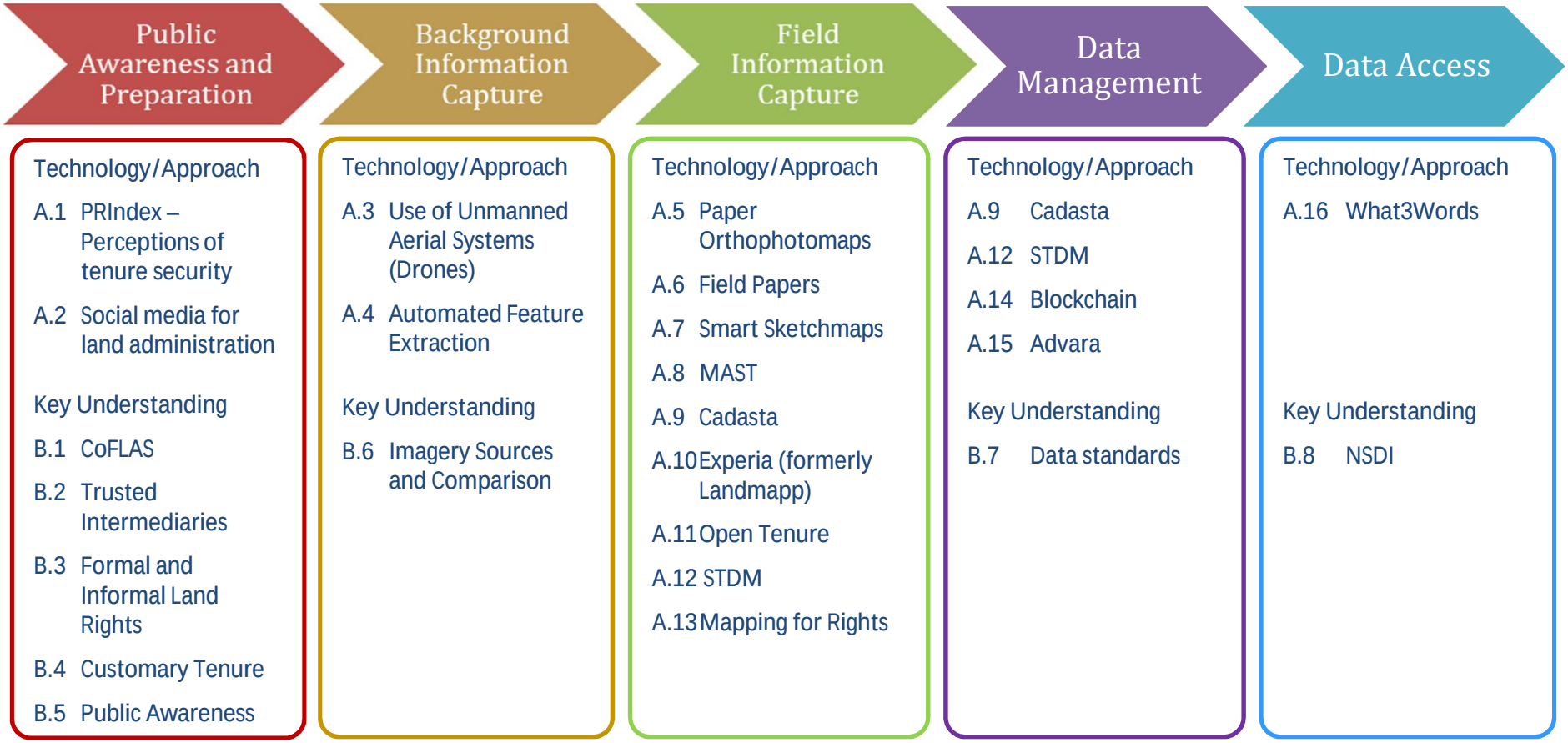
Why should you use the Guide?

- To ensure technologies adopted in land administration are fit-for-purpose and compatible with local context.
- To learn from past experience designing and implementing land administration projects.

What will the Guide give you?

- Practical support and guidance for implementing fit-for-purpose land administration.
- An overview of key approaches and technologies for fit-for-purpose land administration.
- Case studies on what has worked in other contexts.

The structure of the Guide follows 5 key areas in land administration projects



- Some additional "Key Understandings" do not fall under these categories, e.g. Customary tenure.

Technology template example from the Guide

A.1 Global Property Rights Index (PRIndex)

- The Global Property Rights Index, PRIndex, is a fast, low-cost and globally comparable indicator of citizens' perception of the security of their property rights.
- PRIndex is still in research/development phase to identify the core methodology to measure perceptions of tenure security.
- Ultimately, PRIndex will provide the basis for tenure-related measures under the Sustainable Development Goals, Voluntary Guidelines on the Responsible Governance of Tenure of Land, Forests and Fisheries, and other land-related initiatives.

A. Description

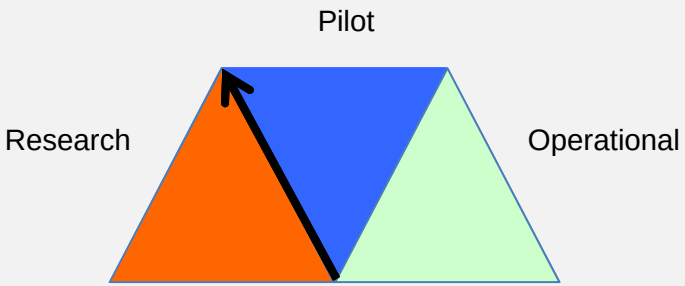
PRIndex stands for the Global Property Rights Index, an indicator of citizens' perception of the security of property rights.

PRIndex is an initiative of Omidyar Network and UK DFID, being implemented by Land Alliance in association with Gallup, Inc. An initial phase of development of the index and testing its application is being carried out in ten countries during 2016 and 2017. After the development phase, the index will be globalized through the Gallup World Poll and other data collections in 2018.

A key motivator for the development of PRIndex has been the need to monitor the Sustainable Development Goals and the Voluntary Guidelines on the Responsible Governance of Tenure of Land, Forests and Fisheries. A further potential application for PRIndex will be the monitoring and evaluation of the impacts of land administration interventions.

ADDITIONAL HEADERS IN TEMPLATE:

B. Maturity of Solution



C. Technology Details

D. Limitations of Solution

E. Supporting Documents and Reviews

F. Contact

Smart Sketchmaps

Conversion of hand drawn sketch maps of non-metric spatial representations into topologically and spatially corrected maps.

Smart Mobile Applications to Secure Tenure (MAST)

- USAID's Mobile Applications to Secure Tenure (MAST) uses an easy-to-use, open-source smartphone application and inclusive methods to capture the information needed to inventory and document land and resource rights.
- Mobile application is coupled with a cloud-based data management system to store geospatial and land information.

Going to scale in Tanzania

Cadasta (formerly MapMyRights)

CADASTA

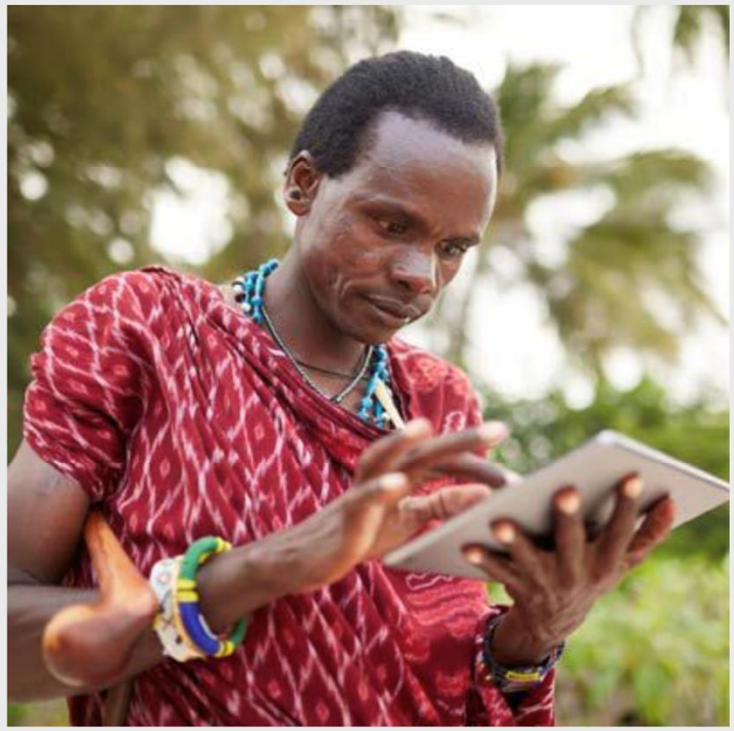
ABOUT US | OUR TECHNOLOGY | OUR WORK | RESOURCES | NEWS | DONATE

Cadasta's Mission

Cadasta Foundation provides technical tools and services to support the documentation of land and resource rights to build stronger, more sustainable communities.

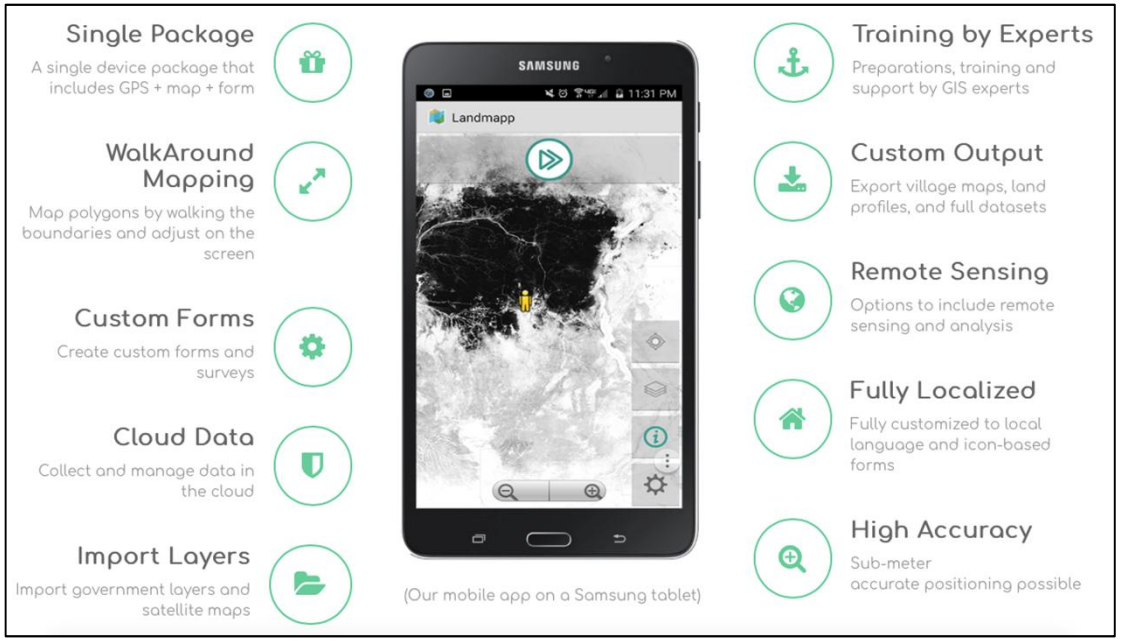
By making it easier to efficiently document, store, and share land and resource rights information, we empower our partners with the information they need to make data-driven decisions and put their rights on the map.

LEARN MORE



Meridia (formerly Landmapp)

- For smallholder farmers securing their land is very complex and an enormous challenge. Meridia is a company that aims to make this simple, by providing an end-to-end service from when the farmer signs up till they hold a legal land certificate in their hands.

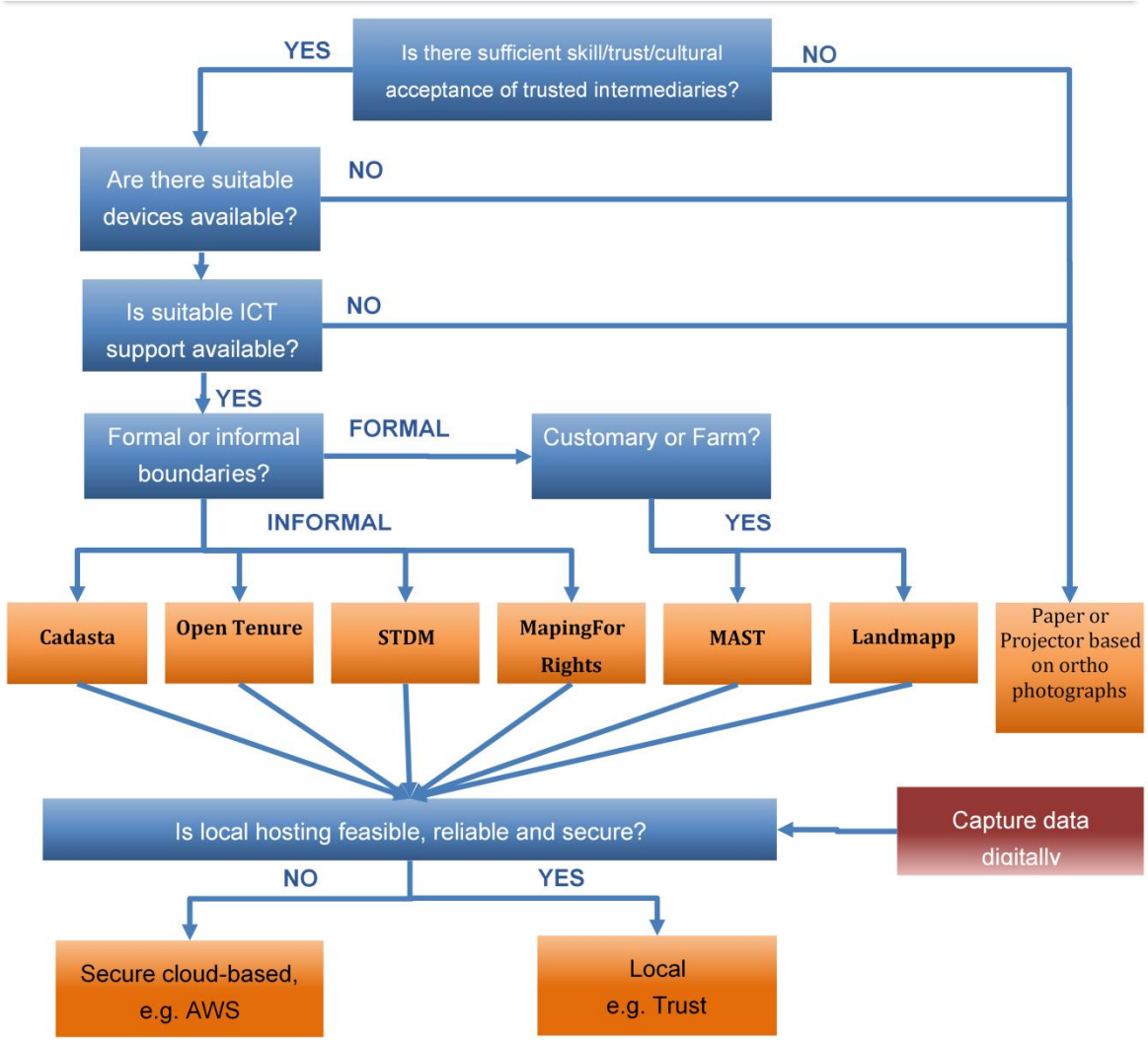


what3words

what3words is a really simple way to talk about location. We have divided the world into a grid of 3m x 3m squares and assigned each one a unique 3 word address. It means anyone can accurately find any location and share it more quickly, easily and with less ambiguity than any other system.

Decision-making example from the Guide

Paper or digital capture of land information



Flowchart for the selection of paper or digital capture of land information

- Provides rough guidance only.
- Solutions may well be a combination of approaches, and depend on local context.
- Paper maps will likely be required for sensitization, results publication etc.
- Mobile devices may be useful to capture some stakeholder information, even if boundary capture is paper-based.
- Mobile and internet penetration should be considered.

Decision-support example from the Guide

Relative requirements of different information capture recording types

Requirement	Paper Orthophotos	Projector/Screen	Digital Device, e.g. smart-phone or tablets
Ease of participation	Very easy	Quite easy	Reliance on individuals; mass participation very difficult.
Skills to use	Very easy; some orientation necessary.	Very easy; moderate orientation necessary.	Training required.
Openness/ participatory	Very open and participatory for anyone attending	Very open and participatory for anyone attending	Mass adjudication is less open/participatory
Ancillary Records	Paper forms etc. needed to record additional data.	Paper forms etc. needed to record additional data.	Ancillary records, e.g. photographs, biometrics etc. can be collected on device, which may promote integrity.
Post-processing	Digitization necessary, though emerging technologies are aiming to reduce this.	Digitisation necessary	Some post-processing required.
Large-printer	Required	Not required although may assist by printing maps for validation.	Not Required, although may assist by printing maps for validation.
Paper maps	Required	Not required although may assist with validation.	Not Required, although may assist with validation.
Software	Software required; large-scale scanners may be required	Software required; large-scale scanners may be required	Software required, generally open-source and configurable,

Decision-support example from the Guide

Categories of urban and rural land, preferred mapping scale and imagery resolution

Area	Description	Preferred Mapping Scale	Image Ground Sampling Distance/ Resolution (m)	Platform	Is LiDAR appropriate?
Urban central High density, high value	Dense development and very high land values require large scale mapping to be performed by conventional terrestrial surveys or large-scale image maps	1/500 – 1/2,000	0.10 - 0.50m	Airplane Drone Satellite	Yes
Residential Urban Medium density, high value	In residential areas, the dwellings and parcels are normally easily identified in image maps	1/1,000 – 1/2,000	0.25 - 0.50m	Airplane Drone Satellite	Yes
Peri-urban Mixed density, good value	Peri-urban areas include a mix of land uses depending on the density and complexity of developments.	1/2,000 – 1/5,000	0.50 - 1.25m	Airplane Drone Satellite	Possibly
Informal/slum Very high density	Slum areas can be mapped for many purposes. Ideally, the individual housing structures can be identified as a basis for various kinds of administration and service delivery.	1/500 – 1/2,000	0.10 - 0.50m	Airplane Drone Satellite	Possibly

EXAMPLE CASE STUDY:
Kosovo Drone Information Capture and Processing

Drone-captured imagery was shown in a World Bank led pilot in Kosovo to reduce time and cost whilst achieving FFP needs. Data quantity and processing was a challenge.

Produce New Orthophotos
1 week production time
1200 ha at 6 cm resolution)

Pre-survey planning: estimate boundaries

Digitized Historical Maps vs. Situation Today

- Pilot completed in April 2016 under the World Bank Real Estate and Cadastre Project, which had the aim to assist the government to produce a national cadastre system and geospatial data infrastructure
- Two drones were used, operating concurrently:
  - » One non-RTK costing US$25K with 5 software licenses
  - » One RTK costing US$50K with 5 software licenses
- Drones each had 12MP Canon cameras, allowing 5cm pixel size at ~145m flying height.
- Key findings:
  - Using real-time kinetic (RTK) measurements, the number of ground control points, whilst still necessary, could be minimized. This reduced field work.
  - A positional accuracy of 5-15cm was achieved.
  - Pilot determined that drones assisted to create virtual models for realistic visualization and promoted participation of landholders/stakeholders.
  - Significant cost- and time-savings compared with land-based survey.
  - Biggest challenge was the amount of data obtained and the processing time required.

The Guide is a dynamic document that is currently being tested and reviewed.

- The Guide has been developed in components with future flexibility and update in mind, e.g. Technology templates could be easily reviewed and/or added to.
- There is potential to convert the Guide into a website for additional flexibility/usability.
- Additional testing and feedback is being encouraged.
- Comments and feedback are welcome and should be directed to Kathrine Kelm, Senior Land Administration Specialist at the World Bank, kkelm@worldbank.org

World Bank Guide

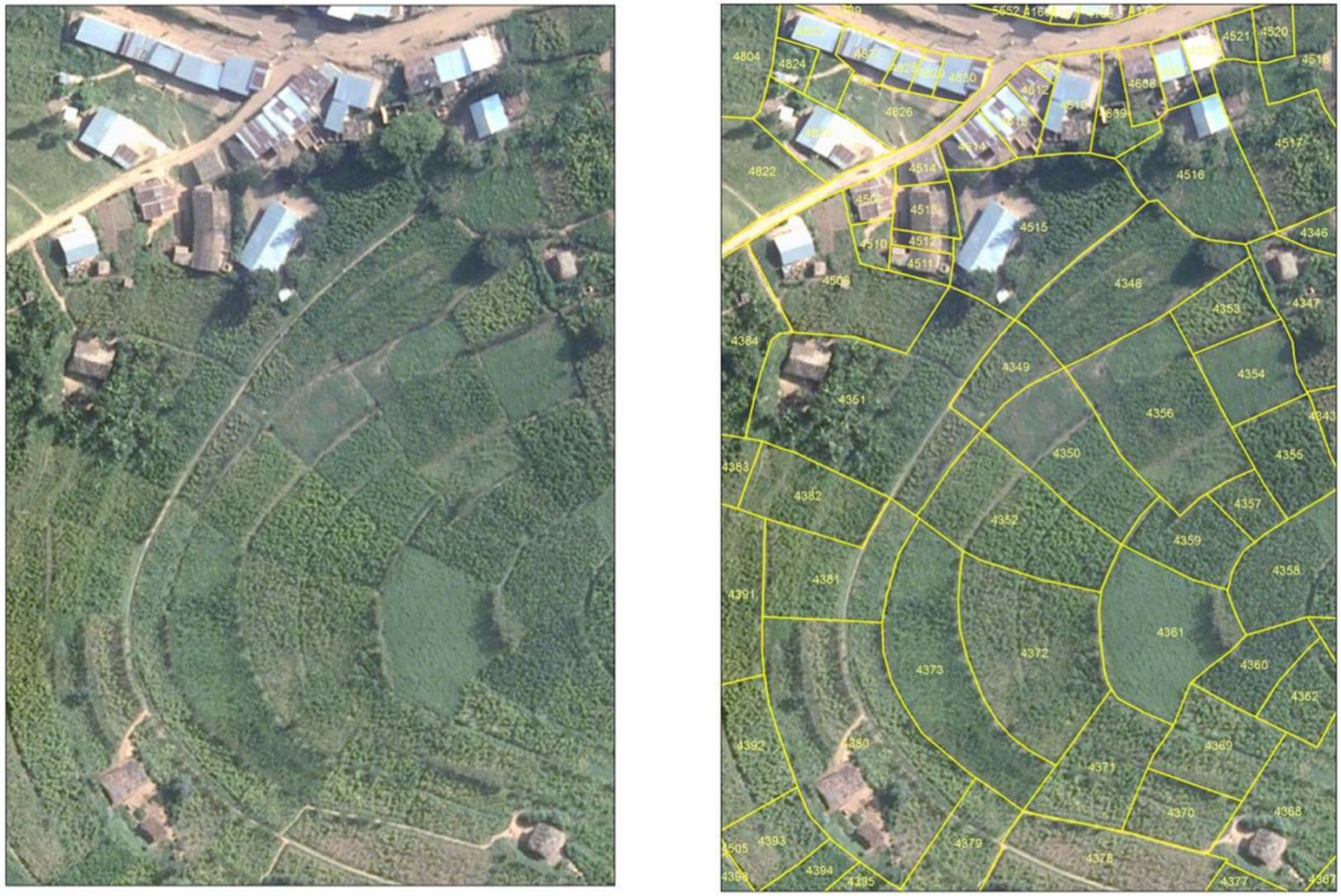
New Technology and Emerging Trends: The State of Play for Land Administration

FFP Land Administration Country Specific Strategies Case Studies

Indonesia
Nepal
Uganda

Progress in formulating and implementing country-specific FFP Land Administration strategies will be reviewed in the latest countries to adopt this policy.

Rwanda – led the way. Ethiopia & Mozambique are following…..



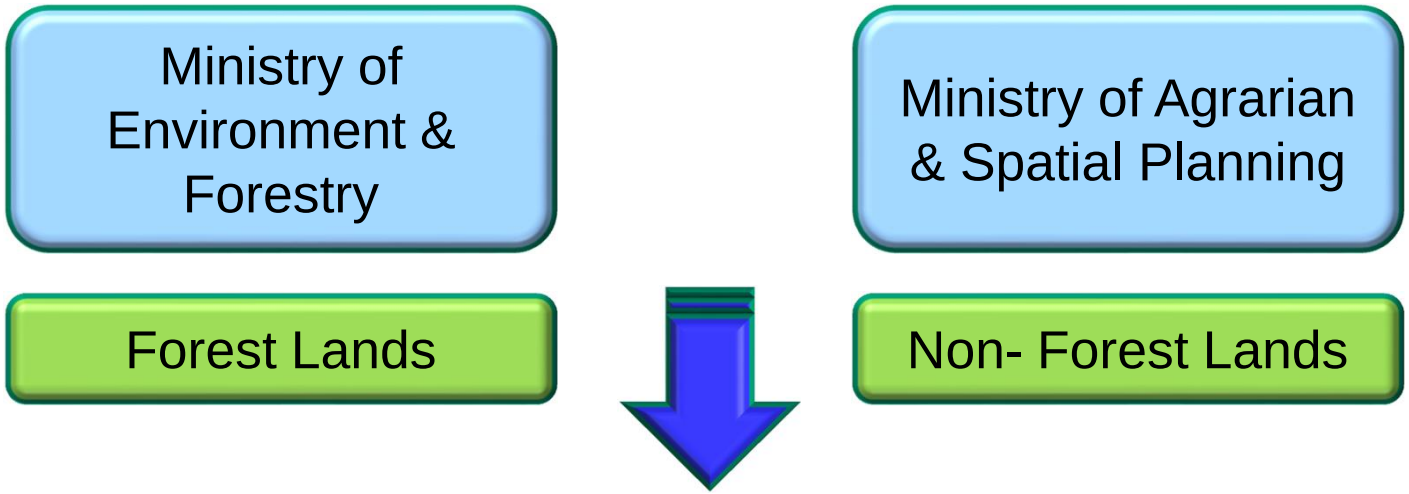
10 million parcels demarcated, adjudicated and registered in about five years
Unit costs were about 6 USD per parcel

Indonesia

- World´s fourth most populated country with a land area close to 2 million km^2 and a population of around 260 million people.
- It is estimated that Indonesia has about 120 million land parcels of which about one third are registered and only about half of these are spatially identified.
- About 3 million new parcels appear each year.

Source: https://artisanvii.com/2017/11/28/agricultural-sector-of-indonesia/

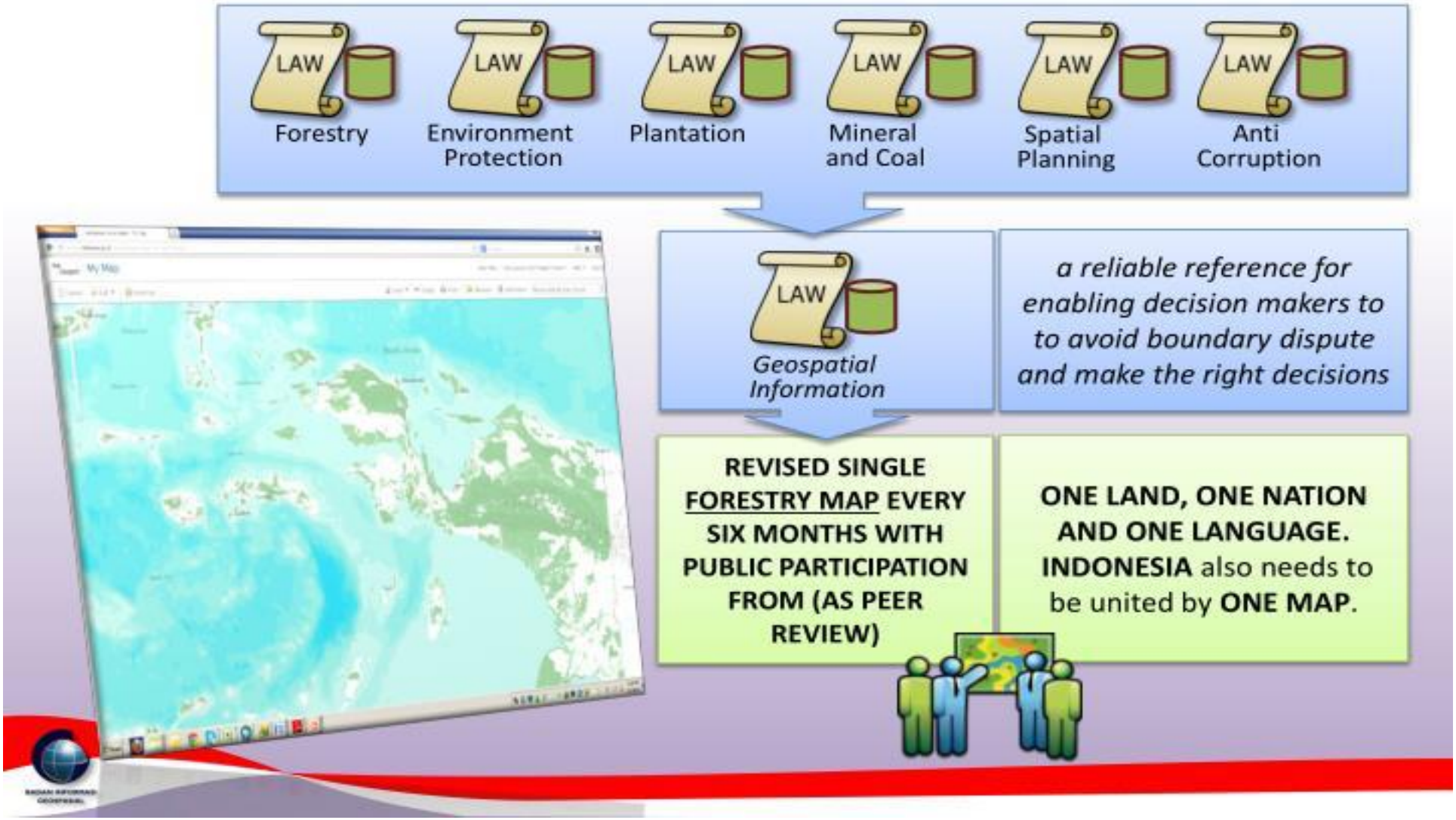
Complex Land Administration Governance Arrangements



- Duplication of policy, legal and institutional frameworks.
- Precipitates unclear tenure arrangements and legal recognition.
- Slow recognition of customary ("adat") communities' rights on land.
- Hinders the government's ability to optimize land use and protect resources.
- Lack of a unified spatial framework.

ONE NATION, ONE GATEWAY, ONE MAP POLICY

GOOD GOVERNANCE FOR SUSTAINABLE FOREST MANAGEMENT



Source: https://www.slideserve.com/hisa/updates-on-development-of-nationwide-geospatial-data-management

The President's Land Administration Targets

President
Joko Widodo

- 5 million land parcels in registered 2017, 7 million in 2018 and 9 million in 2019.
- This target can only be achieved using a FFP approach, even though some resistance is voiced, especially from the National Land Agency (BPN).

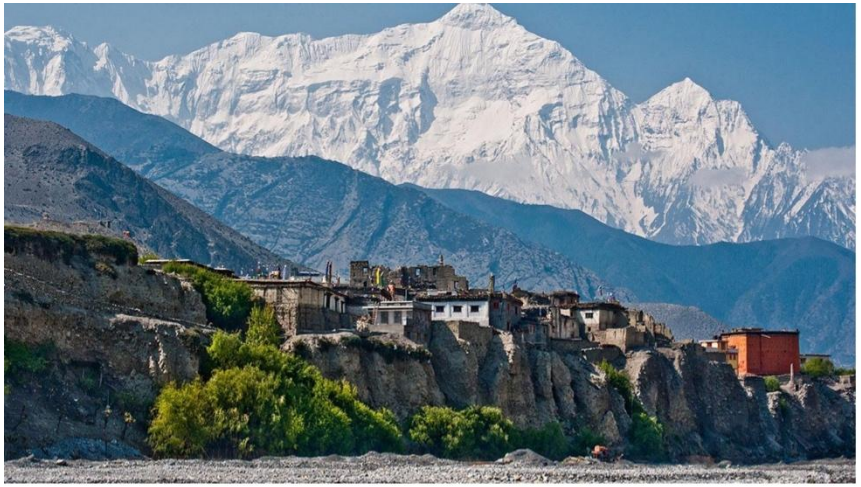
Source: https://en.wikipedia.org/wiki/Joko_Widodo

Piloting FFP Land Administration Approach

- Preliminary, successful piloting of the demarcation of land parcels using high resolution imagery has already taken place in Gresik District, East Java.
- The legal & regulatory frameworks will have to be adjusted in order to allow for mandatory registration as part of the participatory process of boundary identification.
- Overall country-wide success will require institutional reforms to be implemented.

Source: Gresik District Land Office

Nepal



- Almost 28% of the total land area is arable and only around 75% of this is formally registered.
- The land administration system does not deal with non-statutory or informal land tenure.
- It is estimated that around 25% of the total arable land and settlements are outside the formal cadastre. This accounts for approximately 10 million parcels on the ground.
- This means that a significant amount of the Nepalese population is living in informality, without any spatial recognition and without security of tenure.

Source: https://www.lonelyplanet.com/nepal

Nepal 2015 Earthquake

- The mega earthquake of 2015 and post disaster reconstruction and rehabilitation, the promulgation of a new Constitution, and post conflict peace and social rebuilding have ignited the need for developing a strategy for implementation of the National Land Policy in the changed context.

Source: http://nicholasjv.blogspot.com/2015/04/nepal-earthquake-2015.html

New National Land Policy for Nepal

- A strategy for implementing the latest provisions made in the draft National Land Policy and the Constitution of Nepal is being developed in cooperation with UN-Habitat/GLTN and Nepal civil society organisations. Kadaster is also active in Nepal.
- This should ensure social justice on the one hand, and on the other hand, lead to increased land productivity to support economic growth.
- The strategy document integrates the FFP approach to land administration as a key solution to these problems.

Source: Stig Enemark

Uganda

- The 1995 constitution maintained the Freehold and Leasehold tenure systems that were recognised under the colonial laws and re-introduced the Mailo Tenure system that is comparable to freehold.
- The constitution also recognised customary tenure for the first time making it possible for holders of customary rights in land to acquire legal documents.
- Customary tenure accounts for approximately 80% of land in Uganda.
- Uganda Land Laws allow for registration of Mailo (bona fide) titles and customary ownership (Certificate of Customary Occupancy), but these opportunities are not enforced in practice .

Source: https://www.nationsonline.org/oneworld/uganda.htm

FFP Pilots in Uganda

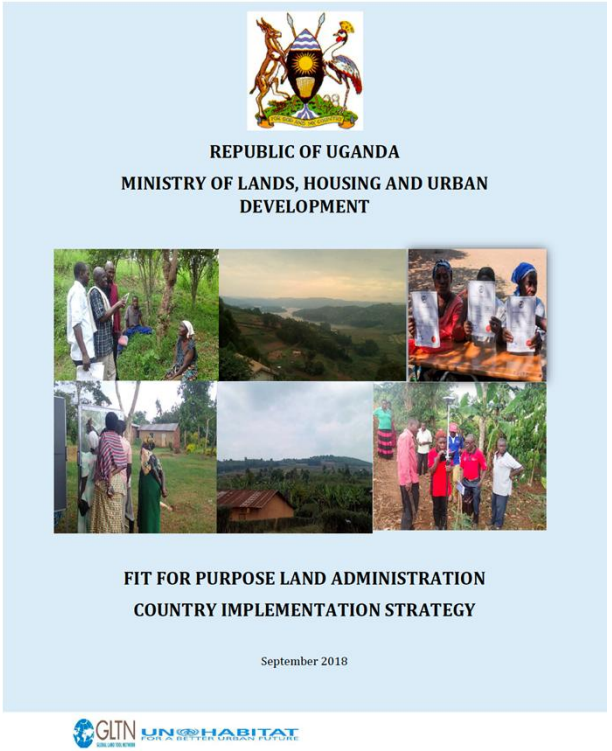
Pilot area:
Mailo District of
Central Uganda

- A number of recent pilot projects, carried out by donors and civil society organisations, have introduced the FFP concept as a vehicle for efficient and effective systematic registration of land rights for the remaining about 20 million parcels currently outside the formal system.
- Teams have been created, consisting a volunteer acting as locally trained land officer and two representatives from local government, to complete the parcel demarcation based on visual boundaries as shown on large-scale satellite imagery or captured in the field with hand held GPS.

Source: Stig Enemark

Uganda Strategy for FFP Land Administration

- Government of Uganda has now engaged with UN-Habitat/GLTN to develop a National Strategy for implementing a FFP approach to land administration.
- The aim is to register 20 million parcels within the next 10 years for a cost of around 10 USD per parcel.
- The draft strategy presents the FFP concept and an assessment of the current land administration system in terms of shortcomings and constraints of delivering secure tenure for all. The requirements for building the spatial, legal and institutional framework are then presented along with the crosscutting issues, such as capacity development and budgetary costs over a period of 10 years.



Source: https://www.nationsonline.org/oneworld/uganda.htm

Support for Strategy for FFP Land Administration

- The strategy is well supported at the Prime Minister level, parts of the ministry of Lands, Housing and Urban Development, and various civil society organisations.
- Some other stakeholders, such as private licensed surveyors, still voice some reservations even though there is a growing understanding of relevance of replacing costly field surveys with simple positioning at a lower accuracy, supported by boundary corner plants.
- Still lack of understanding of the benefits derived from a new role as land professionals being the custodians of a countrywide land administration system.

Uganda will make an excellent testbed for implementing the FFP approach at a national level.

Concluding remarks

There is a consensus that governing the people to land relationship is at the heart of the 2030 global agenda.

There is an urgent need to build simple and basic systems using a flexible and affordable approach to identify the way land is occupied and used, whether these land rights are legal or locally legitimate.

The results of the current country implementations of FFP land administration happening worldwide will make this approach compelling and widely adopted.

At last there will be a scalable land administration solution implemented across the globe to eliminate the scourge of insecurity of tenure.

All land professionals need to embrace and fully support this approach.

Thank you for your attention

Source: Robin McLaren

Traveller, there is no path. The path is made by walking.

[Antonio Machado]

Know Edge Limited

Location Information Innovation

Robin McLaren

Mobile: +44 7803 163137

Email: robin.mclaren@KnowEdge.com

Twitter: @knowedgeltd

Skype: robinmclaren Edinburgh, Scotland

Professor Stig Enemark

Mobile: +45 22 42 25 38

Email: stigenemarks@gmail.com

Skype: stig.enemark Aalborg, Denmark