

# Fit-For-Purpose Land Administration



JOINT FIG / WORLD BANK PUBLICATION



INTERNATIONAL FEDERATION  
OF SURVEYORS (FIG)



WORLD BANK



# Fit-For-Purpose Land Administration

JOINT FIG / WORLD BANK PUBLICATION

Stig Enemark  
Keith Clifford Bell  
Christiaan Lemmen  
Robin McLaren

INTERNATIONAL FEDERATION OF SURVEYORS (FIG)

Copyright © The World Bank and the International Federation of Surveyors (FIG) 2014.

All rights reserved.

International Federation of Surveyors (FIG)  
Kalvebod Brygge 31–33  
DK-1780 Copenhagen V  
DENMARK

Tel. + 45 38 86 10 81

E-mail: [FIG@FIG.net](mailto:FIG@FIG.net)

[www.fig.net](http://www.fig.net)

Published in English

Copenhagen, Denmark

ISSN 1018-6530 (printed)

ISSN 2311-8423 (pdf)

ISBN 978-87-92853-10-3 (printed)

ISBN 978-87-92853-11-0 (pdf)

Published by

International Federation of Surveyors (FIG)

#### DISCLAIMER

The designations employed and the presentation of material in this publication do not imply the expression of any opinion whatsoever on the part of the World Bank concerning the legal status of any county, territory, city or area or its authorities, or concerning the delimitation of its frontiers or boundaries regarding its economic system or degree of development. Excerpts may be reproduced without authorization, on condition that the source is indicated. Views expressed in this publication do not necessarily reflect those of the World Bank.

Front cover photos left: Rio de Janeiro, Brazil; mid: Ghana; right: Nepal.

Back cover photo: Malawi. All photos © Stig Enemark.

Editor: Stig Enemark

Layout: Lagarto

Printer: 2014 Jensen Print, Frederiksberg, Denmark

# CONTENTS

<b>1 FOREWORD</b> .....	5
<b>2 EXECUTIVE SUMMARY</b> .....	6
<b>3 DECLARATION</b> .....	8
<b>4 INTRODUCTION</b> .....	9
<b>5 THE FIT-FOR-PURPOSE CONCEPT</b> .....	10
<b>6 LAND GOVERNANCE</b> .....	13
Supporting the global agenda.....	14
Providing responsible governance of tenure .....	15
In summary .....	17
<b>7 BUILDING FIT-FOR-PURPOSE LAND ADMINISTRATION SYSTEMS</b> .....	19
The Spatial Framework.....	19
The Legal Framework .....	23
The Institutional Framework.....	24
Discussion.....	24
Cases (Rwanda, Namibia, Eastern Caribbean, Ethiopia, Indonesia) .....	27
<b>8 CAPACITY DEVELOPMENT FOR LAND ADMINISTRATION</b> .....	32
<b>9 THE WAY FORWARD</b> .....	34
<b>REFERENCES</b> .....	36
<b>ABOUT THE AUTHORS</b> .....	38



# 1 FOREWORD

This publication is the result of cooperation between the World Bank and the International Federation of Surveyors (FIG) over recent years to address the issue of building and sustaining land administration systems that are basically fit-for-purpose rather than blindly complying with top-end technological solutions and rigid regulations for accuracy.

The cooperation started by the joint FIG / World Bank conference in 2009 addressing “Land Governance in Support of the Millennium Development Goals”. A report from this conference can be found as FIG Publication No. 45 (FIG/WB, 2010).

At the following annual World Bank Conferences on Land and Poverty concerns were raised by various stakeholders that the current procedures and requirements for mapping and boundary delineation were often too cumbersome and expensive and did not comply with the actual needs of most citizens for achieving security of tenure. Furthermore, many of the systems that have been established are costly to maintain and operate and do little to improve service delivery and access to land information. These concerns were subsequently addressed at several special seminars and workshops covering these issues including that of “Spatially Enabling Governments and Societies for Sustainable Land Administration and Management”.

Emerging from these events is the concept of “fit-for-purpose” indicating that land administration should be designed to meet the needs of people and their relationship to land, to support security of tenure for all and to sustainably manage land use and natural resources. This perspective calls for a flexible and pragmatic approach rather than requirements imposed through rigid regulations, demands for spatial accuracy and systems that may be unsustainable for less developed countries dependent on donor funding. Of course, such flexibility allows for land administration systems to be incrementally improved over time, should it be found necessary. This publication provides guidelines for the building of such fit-for-purpose land administration systems. The publication presents an innovative, flexible approach that is jointly endorsed by the World Bank and the International Federation of Surveyors.

We would like to acknowledge the efforts of the authors in providing this publication. It is our hope that the fit-for-purpose approach will be widely applied throughout the world and especially in less developed countries seeking to address issues such as poverty alleviation, insecure access to land, inadequate shelter, social inequity and environmental degradation.

**CheeHai Teo**  
FIG President

**Klaus Deininger**  
Lead Economist, World Bank

## 2 EXECUTIVE SUMMARY

Land administration should be designed to meet the needs of people and their relationship to land, to support security of tenure for all and to sustainably manage land use and natural resources. However, the current solutions to delivering land administration services have very limited global outreach; 75 percent of the world's population do not have access to formal systems to register and safeguard their land rights. The majority of these are the poor and the most vulnerable in society. There is an urgent need to build affordable and sustainable systems to identify the way land is occupied and used. FIG and the World Bank have been cooperating on solutions to this global issue since 2009 and this fit-for-purpose approach to land administration has emerged as a game changer.

Fit-for-purpose means that the land administration systems – and especially the underlying spatial framework of large scale mapping – should be designed for the purpose of managing current land issues within a specific country or region – rather than simply following more advanced technical standards. The fit-for-purpose approach is participatory and inclusive – it is fundamentally a human rights approach. Benefits relate to the opportunity of building appropriate land administration systems within a relatively short time and for relatively low and affordable costs. The fit-for-purpose approach being proposed here offers governments and land professionals the opportunity to make a significant improvement in global land issues. It is a realistic approach that is scalable and could make a significant difference in the intermediate timeframe. The cases provided in this report highlight just how successful this approach can be.

The term “fit-for-purpose” is not new at all, but what is new is relating this term to building sustainable land administration systems. Therefore, the approach used for building land administration systems in less developed countries should be flexible and focused on citizens' needs, such as providing security of tenure and control of land use, rather than focusing on top-end technical solutions and high accuracy surveys. A fit-for-purpose approach includes the following elements:

- **Flexible** in the spatial data capture approaches to provide for varying use and occupation.
- **Inclusive** in scope to cover all tenure and all land.
- **Participatory** in approach to data capture and use to ensure community support.
- **Affordable** for the government to establish and operate, and for society to use.
- **Reliable** in terms of information that is authoritative and up-to-date.
- **Attainable** in relation to establishing the system within a short timeframe and within available resources.
- **Upgradeable** with regard to incremental upgrading and improvement over time in response to social and legal needs and emerging economic opportunities.

A country's legal and institutional framework must be revised to apply the elements of the fit-for-purpose approach. This means that the fit-for-purpose approach must be enshrined in law, it must still be implemented within a robust land governance framework, and the information must be made accessible to all users.



There is a general consensus that governing the people to land relationship is in the heart of the global agenda. In this regard, it must be recognised that land governance and the operational component of land administration systems need a cost effective spatial framework of large scale mapping to operate. This will establish the link between people and land, and thereby enable management and monitoring of improvements to meet the aims and objectives of adopted global and country based land policies. This is where fit-for-purpose approaches provide crucial support in building affordable and sustainable land administration systems. The fit-for-purpose approach includes four key principles:

- **General boundaries rather than fixed boundaries.** Using general boundaries to delineate land areas will be sufficient for most land administration purposes especially in rural and semi-urban areas. In the present context, the term “general boundary” means one whose position has not been precisely determined, although usually, the delineation will relate to physical features in the field.
- **Aerial imageries rather than field surveys.** The use of high resolution satellite/ aerial imagery is sufficient for most land administration purposes. This approach is three to five times cheaper than field surveys.
- **Accuracy relates to the purpose rather than technical standards.** Accuracy of the land information should be understood as a relative issue related to the use of this information.
- **Opportunities for updating, upgrading and improvement.** Building the spatial framework should be seen in a perspective of opportunities for on-going updating, sporadic upgrading, and incremental improvement whenever relevant or necessary for fulfilling land policy aims and objectives.

Ensuring advocacy for change and providing support to change management is a key role for organisations like the World Bank, UN-FAO, UN-HABITAT, FIG and other land related professional bodies. The politicians and decision makers in the land sector are key players in this change process. The hearts and minds of land professionals need to be turned to fully understand and embrace the fit-for-purpose approach. Organisations in the land sector need to ensure the awareness and up-to-date skills of their members and staff. The largest change will be focused on the public sector where this may involve institutional and organisational reforms, including legal framework, processes and procedures, and awareness in terms of incentives and accountability.

To drive this change process there must be effective knowledge-sharing to ensure the lessons learnt and good practices are widely implemented. It is hoped that this publication will pave the way forward towards implementing sustainable and affordable land administration systems enabling security of tenure for all and effective management of land use and natural resources. This, in turn, will enable political aims such as economic growth, social equity and environmental sustainability to be better supported, pursued and achieved.

### 3 DECLARATION

#### ***FIG-World Bank Declaration on Fit-for-Purpose Land Administration***

There is an urgent need to build cost-effective and sustainable systems which identify the way land is occupied and used and accordingly provide for secure land rights. When considering the resources and capacities required for building such systems in less developed countries, the concepts of mature, sophisticated systems as predominantly used in developed countries may well be seen as the end target, but not as the point of entry. When assessing technology and investment choices, the focus should be on a “fit-for-purpose approach” that will meet the needs of society today and that can be incrementally improved over time.

A fit-for-purpose approach includes the following elements:

- **Flexible** in the spatial data capture approaches to provide for varying use and occupation.
- **Inclusive** in scope to cover all tenure and all land.
- **Participatory** in approach to data capture and use to ensure community support.
- **Affordable** for the government to establish and operate, and for society to use.
- **Reliable** in terms of information that is authoritative and up-to-date.
- **Attainable** to establish the system within a short timeframe and within available resources.
- **Upgradeable** with regard to incremental improvement over time in response to social and legal needs and emerging economic opportunities.

A country’s legal and institutional framework must be revised to apply the elements of the fit-for-purpose approach. This means that the fit-for-purpose approach must be enshrined in law and that the information be made accessible to all users.

A fit-for-purpose approach will ensure that appropriate land administration systems are built within a relatively short time frame and affordable costs. The systems allow for incremental updating and upgrading. This approach will facilitate economic growth, social equity and environmental sustainability to be better supported, pursued and achieved.

## 4 INTRODUCTION

The current solutions to delivering land administration services have very limited global outreach; 75 percent of the world's population do not have access to formal systems to register and safeguard their land rights. The majority of these are the poor and the most vulnerable in society and without any level of security of tenure they constantly live in threat of eviction. For example, foreign investors through large scale land acquisitions have attained more than 30 million hectares of land in largely poor and middle-income countries since 2000; many indigenous people have lost rights to their land. This creates significant instabilities in society and severely limits their ability to participate in economic development.

The pressure to change and provide more appropriate and efficient land administration services and strengthen security of tenure is growing within global political circles. Land was prominent on the agenda for the G8 and G20 meetings in 2013 and land indicators are planned within the replacement of the Millennium Development Goals (UN, 2013). The ability of the current land administration paradigm to quickly scale up to engage the excluded 75 percent of the world's population is impossible. It is time to rethink how land rights are recorded and managed.

The key bottleneck in land administration services is the use of traditional, high accuracy, expensive land surveying techniques to record land rights. However, the adoption of 'spatially-fit-for-purpose' and the 'continuum-of-continuum' concepts will introduce flexibility and fundamentally change how land professionals record land rights. This approach provides a profound opportunity for the profession to positively react to these global land policy agenda challenges.

This report provides a comprehensive overview of the 'fit-for-purpose' approach by initially setting the land governance and global land policy agenda context, describing how to build fit-for-purpose land administration systems, recognising the benefits of implementing the approach, identifying the potential constraints and barriers for its adoption, highlighting the associated opportunities for land professionals and finally describing the capacity building required to achieve widespread adoption and secure tenure for all.

## 5 THE FIT-FOR-PURPOSE CONCEPT

There is an urgent need to build simple, basic and sustainable systems using a flexible and affordable approach to identifying the way land is occupied and used. When considering the resources and capacities required for building such systems and the corresponding basic spatial frameworks available in less developed countries, the concepts of mature, sophisticated systems as predominantly used in developed countries, may well be seen as the end target rather than the point of entry. When assessing technology and investment choices, the focus should be on a “fit-for-purpose approach” that will meet the needs of society today and can be incrementally improved over time (Enemark, 2013).

The term “fit-for-purpose” is not new at all. What is new is to relate this term to building sustainable land administration systems. The term “fit-for-purpose land administration” indicates that the approach used for building land administration systems in less developed countries should be flexible and focused on serving the purpose of the systems (citizens’ needs such as providing security of tenure and control of land use) rather than focusing on top-end technical solutions and high accuracy surveys.

Flexibility is the key characteristic. It is about flexibility in terms of demands for accuracy, demands for spatial information and recording of legal and social tenure, and in shaping the legal framework to accommodate societal needs.

Another key characteristic is incremental improvement. The systems should be designed for initially meeting the basic needs of society today and have the capability to be incrementally improved over time in response to social and legal needs economic development, investment and also financial opportunities that may emerge over the longer term. Using a fit-for-purpose approach does not limit ambitions for an ultimate solution, e.g. solutions in line with some advanced systems used predominantly in developed countries.

The basic components of the fit-for-purpose concept are threefold:

1. Using affordable modern technologies for building a spatial framework, e.g. orthophotos, showing the way land is occupied and used. The scale and accuracy of the mapping may vary according to building density, topography and other requirements.
2. Based on the spatial framework, using a participatory approach to identifying and recording the various legal and social tenure rights associated with occupancy and use of the land.
3. Adopting a legal framework that accommodates the flexibility necessary for implementing a fit-for-purpose approach. This framework may be established up front or it may be developed incrementally.

The concept and the basic components are described in details in section 7.

The fit-for-purpose concept directly supports what is called “Continuum of Continuums”. This term occurred in response to the view that the traditional cadastral systems –

as known in most developed countries and which often operate with fixed (high level) technical standards and a legal perspective – predominantly support freehold as the sought after form of tenure.

The concept “Continuum of Continuums” has many continuum dimensions:

- It recognizes that a continuum of tenure exists in terms of social tenure relationships, such as occupancy, usufruct, informal rights, customary rights, indigenous right and nomadic rights. In the same way, parties holding the rights may not only be natural or legal persons, but could be a family, tribe, community, village, or a farmers’ cooperative.
- Also the spatial unit may not only be a land parcel, but can also vary according to where the rights and social relationships apply, e.g. a point cadastre rather than a parcel boundary, or it could be text based or photo based.
- Similarly, one may talk about a continuum of data acquisition methods or technologies that will include what could be called “continuum of accuracy”.
- Another dimension could be a continuum of land recording and credit accessibility, ranging from informal land offices in an informal settlement to a governmental land registry.

The key point is that the systems should enable secure land rights for all and cover all land as a basis for land valuation and land use control. That also means securing the rights of the land held by the state. At the outset, the systems may vary from being very simplistic in some (rural) areas of the country while other (densely populated) areas are covered by more accurate and legally complete applications, especially where land is of high value and in short supply. Through updating and upgrading procedures the systems can then, in turn, develop into modern and fully integrated systems for land information and administration, where appropriate.

The change process necessary for implementing a fit-for-purpose approach to land administration can start today. Legal flexibility should be introduced as a basis for identifying and recording the spatial units in a more flexible way. The spatial framework, e.g. orthophotos – showing the way land is divided into specific plots for occupancy and use – can then be developed using a flexible approach and the various legal and social tenure rights can be recorded in a participatory way.

A key demand, of course, relates to developing the necessary capacity for building and running the systems (see section 8). Another demand is about establishing the budgetary base, e.g. through development aid support such as through the World Bank. And, most importantly, there is a fundamental requirement for strong political will and leadership. However, recent experiences show that it is possible – Rwanda, for example, has covered the whole country using a fit-for-purpose approach within 5 years and for a cost of around 6 USD per parcel/spatial unit.

The fit-for-purpose approach implies that the role of the land professionals will significantly change. Field work will increasingly be undertaken by local field staff given the

necessary short term training – while the land professionals will mainly oversee and manage the process and ensure that all aims, objectives and regulations are complied with. However, the land professionals will also benefit from this change through enlarging their base of services to include the total country population.

The fit-for-purpose approach is participatory and inclusive – it is fundamentally a human rights approach. Further benefits relate to the opportunity of building appropriate systems within a relatively short time and for relatively low and affordable costs. This will enable political aims such economic growth, social equity and environmental sustainability to be better supported, pursued and achieved. However, the fit-for-purpose approach must still be implemented within a robust land governance framework.



© Christiaan Lemmen

Identification of parcel boundaries on an aerial imagery, Ethiopia.

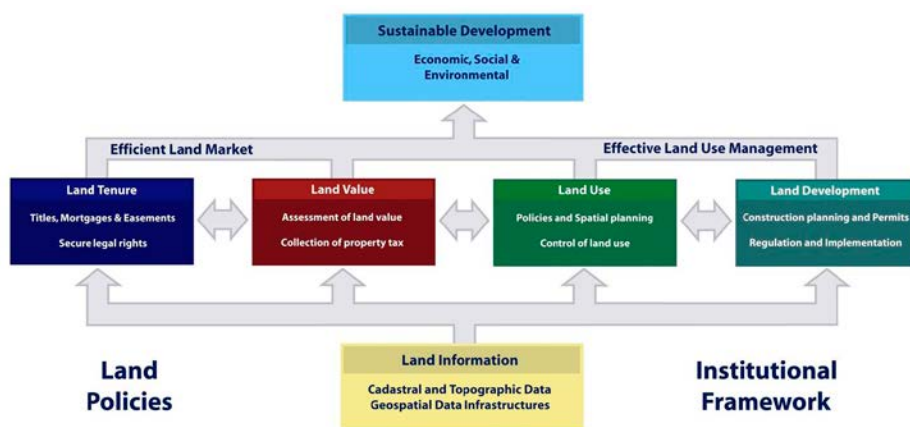
## 6 LAND GOVERNANCE

All countries have to deal with governing their land. They have to deal with the governance of land tenure, land value, land use and land development in some way or another. A country's capacity may be advanced and combine all the activities in one conceptual framework supported by sophisticated Information and Communication Technology (ICT) models or, more likely, capacity will be involved in very fragmented and basically analogue approaches.

Land governance is about the policies, processes and institutions by which land, property and natural resources are managed. Sound land governance requires a legal regulatory framework and operational processes to implement policies consistently within a jurisdiction or country, in sustainable ways. Land administration systems provide a country with an infrastructure for implementing of land policies and land management strategies in support of sustainable development.

Such land administration systems need a spatial framework to operate. This framework may be very sophisticated and included as a basic layer of interactive land information systems, or, as suggested by the fit-for-purpose approach, it may be just an satellite/orthophoto imagery showing the way land is divided in to plots for specific use and possession. A global perspective for land management and governance is shown in Figure 1.

The operational component of the land management concept is the range of land administration functions that include the areas of: *land tenure* (securing and transferring rights in land and natural resources); *land value* (valuation and taxation of land and properties); *land use* (planning and control of the use of land and natural resources); and *land development* (implementing utilities, infrastructure, and construction planning). These four functions interact to deliver overall policy objectives, and they are facilitated by appropriate land information infrastructures that include cadastral and topographic datasets linking the built and natural environment. Ultimately, the design of adequate systems of land tenure and land value should support efficient land markets, and adequate systems of land use control and land development should lead to



**Figure 1:** A global land management perspective (Williamson et.al., 2010).

effective land use management. The combination of efficient land markets and effective land use management are seen as a key component in delivering economic, social and environmental sustainability.

Sound land administration systems deliver a range of benefits to society in terms of: support of governance and the rule of law; alleviation of poverty; security of tenure; support for formal land markets; security for credit; support for land and property taxation; protection of state lands; management of land disputes; and improvement of land use planning and implementation. The systems enable the implementation of land policies to fulfil political and social objectives and to achieve sustainable development.

### ***Supporting the global agenda***

Good land governance should be seen as a means of supporting the global agenda. This relates to the global partnership for sustainable development as established through the UN Agenda 21 with a global action plan for sustainable development into the 21<sup>st</sup> century. This action plan is a process that aims to meet the needs of the present generation without harming the ability of future generations to meet their needs (UN, 1992). In striving for sustainability most countries have recognised the importance of the fundamental relationship between people and land. Sound land governance and administration – whether organised through advanced information systems or established through more basic fit-for-purpose approaches – provides the tool for managing this people to land relationship in a sustainable way.

Another cornerstone in the global agenda is The Millennium Development Goals (MDGs) that form a blueprint agreed to by all the world's countries and the world's leading development institutions. The first seven goals are mutually reinforcing and are directed at reducing poverty in all its forms. The last goal – global partnership for development – is about the means to achieve the first seven. To track the progress in achieving the MDGs a framework of targets and indicators has been developed. This framework includes 18 targets and 48 indicators enabling the on-going monitoring of the progress that is reported annually (UN, 2000). As the world now heads into the post-2015 development era, the achievement of the MDGs, especially in conflict and fragile states lags well behind and in fact the majority of MDG targets will not be met in such states (World Bank, 2013a).

The MDGs do not mention land governance or security of tenure in specific terms. However, the MDGs represent a wider concept or a vision for the future, where the contribution of good land governance is vital. This perspective will also continue for the post 2015-development agenda for "Sustainable Development Goals" where indicators are currently being considered for measuring the further progress, e.g. in relation to secured land rights, equal rights of women, and legal recognition of the continuum of land rights.

The MDGs are also a good example of the phrase: "If we can measure it – we can better it". This phrase relates to the fact that without a road map for measuring the progress, most UN or government pronouncements will have little impact and are easily forgotten – no matter how well-meaning they may be. But by monitoring and documenting the on-going progress, governments can justify activities and associated costs and can also more easily attract donor funding toward meeting the country specific targets.



Another good example of measuring and monitoring is the Land Governance Assessment Framework (LGAF) developed by the World Bank in conjunction with UN and other partners. The LGAF provides a holistic diagnostic review at the country or regional levels that can inform policy dialogue in a clear and targeted manner. This quick and innovative tool to monitor land governance is built around seven main areas for policy intervention: legal and institutional frameworks for rights recognition and enforcement; land use planning, land management and taxation; management of public land; public provision of land information; dispute resolution and conflict management; large scale land acquisition of land rights; and forestry. The LGAF helps policymakers and other stakeholders to make sense of the technical levels of the land sector, benchmark governance, prioritize reforms in the land sector and identify areas that require further attention (World Bank, 2011). Further examples are the annual World Bank “Doing Business” reports (World Bank 2013b) and the annual Corruption Perception Index (Transparency International, 2013).

Furthermore, sound land governance is also a key means to address global challenges such as climate change, disaster risk management, food scarcity, and rapid urbanisation.

### ***Providing responsible governance of tenure***

Landownership and secure tenure can be a vital source of capital, which opens personal or group credit markets, leads to investments in land buildings, provides a social safety net, and transfers wealth to the next generation. However, in several less developed countries most people do not have legal documents for the land they occupy or use and thereby fall outside the formal management system. This means that most decisions are made without information. This causes dysfunctional management of urban and rural areas from the household up to government level, which impair the lives of millions of people (UN-HABITAT, GLTN, 2012). Sound land governance is the key tool for dealing with security of tenure.

In less developed regions such as Sub-Saharan Africa, more than two thirds (in some countries up to 90 percent) of the land is outside the formal systems of land administration. This means that the existing formal systems do not serve the millions of people whose tenures are predominantly social rather than legal. Unless an appropriate legal framework is provided, social tenure provides no protection. This is now being addressed through the Africa Land Policy Initiative and also the World Bank agenda for improving land governance in Africa (see box on “Africa on the Move”).

UN-HABITAT has developed an innovative approach through the so-called Social Tenure Domain Model (FIG/GLTN, 2010) that includes a “scaling up approach” with a range of steps from informal to more formalised land rights. Furthermore, responsible governance of tenure is now incorporated as part of the global agenda through the recently published Voluntary Guidelines on Responsible Governance of Tenure (FAO, 2012). The Guidelines represent a global consensus on internationally accepted principles and standards for responsible practices. The Guidelines promote secure tenure rights and equitable access to land (including forests and fisheries) as a means of eradicating hunger and poverty, supporting sustainable development and enhancing the environment. However, in order for the Guidelines to be effective in any jurisdiction, they require political will and commitment to good governance by the governments at all levels.

## ***Africa on the move***

Sub-Saharan Africa is often referred to as an underdeveloped region with a great potential. Many land professionals having visited the region would agree to that. But Africa is now on the move.

Economic growth in Sub-Saharan Africa is considerable with a rate of above 5 percent per year for more than a decade. Projections by the World Bank indicate that this will continue for the years ahead while the global economy will grow at only 2.5 percent (and only about 1 percent in Western economies). So Africa is expected to grow twice as fast as the global economy.

However, Sub-Saharan Africa is still mostly poor and has been unable to translate its recent robust growth into rapid poverty reduction. Compared to other less developed regions, Sub-Saharan Africa has generally been left behind and is struggling with issues such as insecurity of tenure, informal settlements and urban slums, landownership inequalities and landlessness, and degrading of natural resources. These facts indicate that poor land governance, including the manner in which land rights are defined and administered, may well be the root of the problem.

In recent years significant progress has been achieved in countries such as Rwanda and Ethiopia through comprehensive land reform projects and other African countries are following in their footsteps. At the regional scale the challenges are addressed by setting a promising agenda for Africa and by focusing on sustainable land governance as the core means of achieving the goals. The overarching agenda is set by the African Union, the African Development Bank, and the UN Economic Commission for Africa. It has been adopted by the African leaders through two seminal documents "Declaration on Land Issues and Challenges in Africa" (2009) and the "Framework and Guidelines on Land Policy in Africa" (2010).

But developing land policies is not an end in itself – they need to be effectively implemented. This relates to land reform programmes, land administration infrastructures and building transparent and sustainable institutions. This process of implementation is facilitated by a capacity development framework currently being developed by the Global Land Tool Network (GLTN) as part of the Land Policy Initiative (LPI).

Furthermore, in July 2013 the World Bank released a report on "Securing Africa's Land for Shared Prosperity". This publication presents a ten-point programme to scale up land policy reforms and investments for improving land governance in Sub-Saharan Africa. The key elements include: improving tenure security and land access; increasing efficiency and transparency in land administration services; developing capacity in land administration; and increasing scope and effectiveness of land use planning. The programme indicates that it would cost African countries and their development partners, including the private sector, USD 4.5 billion spread over 10 years to scale up these policy reforms and investments. This sounds like an extremely good bargain.

The possible merging of these initiatives will set a new and very promising agenda for Africa by changing the focus from projects on just issuing titles to a more holistic approach to land governance, including institutional development and the connected capacity building activities. This is basically a human rights approach and should be strongly supported by the global community of land professionals. Let's all embrace that Africa is on the move...

*Stig Enemark, GIM International, October 2013.*

The Guidelines outline principles and practices that governments can refer to when making laws and administering land, fisheries and forests rights. While the Guidelines acknowledge that responsible investments by the public and private sectors are essential for improving food security, they also recommend that safeguards be put in place to protect tenure rights of local people from risks that could arise from land grabbing, and also to protect human rights, livelihoods, food security and the environment. The Guidelines thereby place tenure rights in the context of human rights such as the right to adequate food and housing. With the help of the Guidelines a variety of actors can determine whether their proposed actions and the actions of others constitute acceptable practices.

### ***In summary***

The global land agenda as presented above is driven mainly by the UN and its agencies such as UN-FAO, UN-HABITAT and the World Bank. It must be noted though, that a range of other agencies, such as civil society organisations, and NGOs (non-governmental organisations) are strongly involved in supporting and driving this agenda. This includes IFAD (International Fund for Agricultural Development); UNGGIM (UN Initiative on Global Geospatial Information Management); ILC (International Land Coalition); Slum Dwellers International; FIG (International Federation of Surveyors); GSDI (Global Spatial Data Infrastructure Association), and others. Furthermore the agenda is supported by political clusters such as G8 who at their 2013 meeting endorsed the global agenda for Responsible Governance of Tenure and the Open Data Charter (G8, 2013).

There is a general consensus that governing the people to land relationship is in the heart of the global agenda. In this regard, it must be recognised that land governance and the operational component of land administration systems need a cost effective spatial framework of large scale mapping to operate. This will establish the link between people and land, and thereby enable management and monitoring of improvements in relation to meeting aims and objectives of adopted global and country based land policies. This is where fit-for-purpose approaches provide crucial support. Such a fit-for-purpose approach to building affordable and sustainable land administration systems is outlined in section 7.



Peri-urban developments, Lagos, Nigeria.



Favela developments, Rio de Janeiro, Brazil.

## 7 BUILDING FIT-FOR-PURPOSE LAND ADMINISTRATION SYSTEMS

Fit-for-purpose means that the land administration systems – and especially the underlying spatial framework of large scale mapping – should be designed for the purpose of managing current land issues within a specific country or region – rather than simply following more advanced technical standards. The land administration functions, as mentioned above and as shown in Figure 1, may place different requirements on accuracy and this again may vary depending on the context of geography and density of the use of land. Security of tenure does not in itself require accurate surveys of the boundaries. However, the important aspect is identification of the land object in relation to the connected legal or social right. The accuracy required for the purpose of planning and management of the use of land also varies considerably for different kinds of rural land uses versus the higher density of built up urban areas, and the same is the case for valuation and taxation of high value building sites versus marginally used rural areas. Such a flexible approach to building land administration systems also relates to the legal and institutional frameworks.

### *The Spatial Framework*

The spatial framework is the basic large scale mapping showing the way land is divided into spatial units (such as parcels and plots) for specific use and occupancy. It provides the basis for dealing with land administration functions such as: recordation and management of legal and social tenure; assessment of land and property value and taxation; identification and management of current land use; planning for future land use and land development; delivery of utility services; and administration and protection of natural resources (see Figure 1).

In many developed regions of the world this countrywide spatial framework has been developed over about two centuries as large scale cadastral mapping and maintained through property boundary surveys conducted to a high accuracy according to long standing regulations and procedures. When considering the resources and capacities required for building spatial frameworks in less developed countries, the concepts predominantly used in developed countries may well be seen as the end target, but not as the point of entry. Using such advanced technical standards of adjudication, boundary marking and field surveys are far too costly, too time consuming and capacity demanding, and in most cases simply not relevant, for providing an initial suitable spatial framework. The focus should therefore be on methods that are fast, cheap, complete, and reliable. The spatial framework can then be upgraded and updated whenever necessary or relevant in relation to land development and management activities. Also, the framework may well include volunteered information provided by citizens (crowd sourcing) where authoritative data are not required or available (McLaren, 2013).

In relation to UN-HABITAT's concept of the continuum of land rights, such a fit-for-purpose approach could be referred to as a "**continuum of accuracy**". The key focus should be on providing secure tenure for all, and managing the use of land and natural resources for the benefit of local communities and society as a whole. The fit-for-purpose approach for providing the spatial framework can be outlined in four key principles:

## ***Four Key Principles***

- **General boundaries rather than fixed boundaries**

In the present context, the term “general boundary” means one whose position has not been precisely determined (although usually the delineation relates to physical features in the field) while “fixed” means that it has been accurately recorded. Using general boundaries will be sufficient for most land administration purposes especially in rural and semi-urban areas. Whereas fixed boundaries will contribute mainly to interoperability between legal and physical objects in advanced land information systems.

In the context of Sub-Sahara Africa – where only 30 percent of the land is included in the formal land administration systems – it is argued that use of a general boundary concept will be adequate and sufficient for incorporating the remaining 70 percent under more formalised land administration procedures. Fixed boundaries can then be used where relevant or necessary for any specific purposes or when required and paid for by the landowner/stakeholders.

- **Aerial imageries rather than field surveys**

The use of high resolution satellite imagery (e.g. 50 cm pixels or better) or ortho-photo imagery, e.g. in the scale of 1:2,000 for rural and low density areas; and 1:500 scale for dense urban areas, will be sufficient for most land administration purposes. The required scale of the mapping depends on topography and density of development and may vary from large scale mapping in dense urban areas to smaller scale imageries in rural areas and remote regions. Boundaries can easily be identified on the imagery in most cases, depending on the visibility of the physical features. Experience, e.g. Ethiopia, shows that citizens have good spatial cognizance. They can normally easily interpret the imageries, and a participatory approach to boundary determination can then be easily applied. The remaining smaller number of non-visual boundaries can be added using hand held GPS or field survey measurements.

The use of imageries (including using Unmanned Aerial Vehicles – UAV) are considerably cheaper than field surveys and do not require the capacity of trained professionals to undertake the field work. It is estimated that compared to satellite / orthophoto imagery, field surveys are about three times more costly in rural areas and about five times in urban areas. Furthermore, the mapping methodology using imageries provides not only the spatial framework of spatial units, but also the general topography of land use and buildings and infrastructure, that is fundamental for the planning and land development functions of the land administration systems.

- **Accuracy relates to the purpose rather than technical standards**

Accuracy of the land information such as the parcel boundaries, should be understood as a relative issue related to the use of this information, rather than being driven by technical standards that are often inflexible and “over the top” for the purpose. In general, the need for accuracy is clearly lower in rural areas than in densely built up and high value urban regions, where accurate field surveys may be justified. But, more importantly, the need for accuracy of the various features should be determined by the purpose of using this information for supporting the various land administration functions. In this regard, the registration of legal and social tenure rights requires identification of objects, but the process does not call for a high accuracy in itself.

Also, planning and land development processes mainly require sufficient mapping for identifying physical and spatial objects rather than high accuracy per se. Any demand for accuracy may stem from issues such as high land value in dense urban areas or implementation of costly construction works. High accuracy through field surveys should therefore only be provided when needed and be paid for by the beneficiaries.

- **Opportunities for updating, upgrading and improvement**

Building the spatial framework is not a one off process – it should be seen in a perspective of opportunities for on-going updating, sporadic upgrading, and incremental improvement whenever relevant or necessary for fulfilling land policy aims and objectives. This of course requires that all mapping and surveys are linked to a national grid system through a positioning infrastructure based on the Global Navigation Satellite Systems (GNSS).

The requirement for on-going, updating procedures is essential in order to ensure that all data are complete and reliable. Without such procedures the investments are easily wasted over a relatively short period. The procedures should ensure that any new boundaries or changes of existing boundaries are recorded through measurements related to the existing boundaries or through provision of new imageries e.g. by using UAVs once the subdivision boundaries are established.

The opportunity for upgrading should be adopted wherever possible and allows for providing an improved map-base whenever needed for specific purposes, such as land development activities, major construction works and implementation of major infrastructure. This allows for incremental improvement that, in turn, will establish a spatial framework in line with modern and fully integrated land information systems.

The process for providing the spatial framework will include the following steps:

- (i) Producing the satellite / orthophoto imagery at scales according to topography, land use, and building density. The imagery itself can be used for many purposes in relation to land use management processes, including compliance monitoring of land development investment, forest degradation and land cover change.
- (ii) The satellite / orthophoto imagery will be used in the field to identify, delineate and adjudicate parcel boundaries (general boundaries), which can be drawn directly on the imagery and the parcels be numbered for reference to the connected land rights (see Figure 2). This is basically a participatory approach that involves all local stakeholders.
- (iii) The resulting boundary framework can be digitised from the imagery to create a digital cadastral map to be used as a basic layer in the land information system or in combination with the satellite imagery.

The digital cadastral map can be created either by scanning the field map with the delineated boundaries and then digitising the boundary points from the map, or by using



Courtesy of Dr. Zerfu Hailu

**Figure 2:** Orthophoto used as a field work map sheet with a georeferenced grid. The map shows the delineated parcel boundaries and parcel identification numbers. (Ethiopia).



the field map to identify the boundaries and then digitising the boundary points from the natural features as they appear on a digital orthophoto. The latter process is more accurate but takes more skills and more sophisticated software.

Any boundary disputes can be resolved during the adjudication process where all relevant stakeholders are present – or a special administrative body (rather than judicial) may be established for this purpose. In the longer term, boundary disputes relate to the way the boundary was determined when established in the system. It is therefore important to store the relevant map information in archives for this purpose.

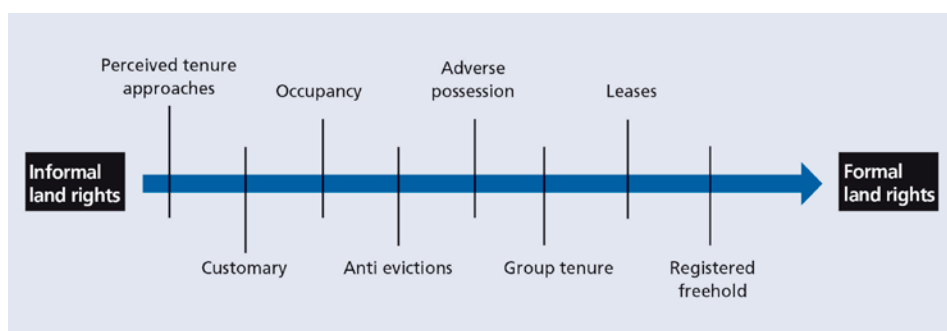
## ***The Legal Framework***

In most less developed countries the legal framework for land administration reflects colonial times and often serves only the elite. The processes for land registration are complex, costly, time consuming and with high demands for accuracy of boundary surveys and often unnecessary legal interventions by notaries, lawyers and the court. The existing legal framework is therefore often a significant barrier for implementing a flexible approach to building land administration systems and the underlying spatial framework as described above. So, as well as the spatial framework, the legal framework should be flexible and be designed along administrative rather than judicial lines. Furthermore, the legal framework and its institutions must support both legal and social tenure, ensure that flexible regulations are enshrined in the laws and support a fit-for-purpose approach as described above.

It is recognized that the legal frameworks as used in developed countries do not serve the millions of people whose tenures are predominantly social rather than legal. This relates to the Continuum of Land Rights (Figure 3) where the range of possible forms of tenure is considered as a continuum. Each continuum provides different sets of rights and degrees of security and responsibility and enables different degrees of enforcement (UN-HABITAT, GLTN 2008). As mentioned earlier, the figure does not imply that all societies will or should necessarily develop into freehold tenure systems. Importantly, the continuum of land rights indicates, that each step in the process can be formalised, with registered freeholds offering a stronger protection, than at earlier stages.

Each form of tenure has benefits and limitations in different contexts. Customary systems can meet social and economic needs and, although often not documented, can be very secure. However, this is often no longer the case as demand for communal land has surged in response to increased private investments in natural resources. Land grabbing and expropriation without proper compensation have been widely reported. Scaling up policies and registration of communal lands would help to protect the rights of local communities while reducing investment risks. By demarcating the outer boundaries of village lands the allocation and management of individual plots could be left to community institutions with the option to register individual rights as the need arises (Byamugisha, 2013).

The Social Tenure Domain Model (STDM), as mentioned earlier, supports the continuum of land rights. The STDM is a concept rather than a software package. The concept is flexible and enables all legal and social tenure rights to be captured (FIG/GLTN, 2010). The STDM is a sub-version of the new ISO standard on Land Administration Domain Model (ISO 19152, 2012) that presents a generic and inclusive solution as a way forward for building flexible land administration systems.



**Figure 3:** Continuum of land rights (UN-Habitat, 2008).

### **The Institutional Framework**

This publication has focused on establishing the spatial framework covering all land and enabling security of land rights for all. This is due to the concern raised about often over-prescribed requirements for surveying and marking of boundaries that can be a major barrier in terms of costs, time, and available capacity. However, in addition, there is often an over-prescription of systems with high-end, expensive to maintain, enterprise geographic information systems and relational databases. Alternatives, such as open source solutions should be considered, e.g. the UN-FAO Open Source Cadastre and Registration Software (SOLA). Furthermore, the positioning/measuring equipment and systems advocated by consultants and vendors is also often over-prescribed.

It is recognised, however, that establishing the institutional framework in terms of efficient, accountable government workflows for making the systems operational is often an even bigger, expensive obstacle. This issue relates to a large extent to the political and administrative culture of the country and to the need for building sufficient capacity at societal, organisational and individual levels. The issue of capacity development is address in some detail in section 8.

### **Discussion**

The discussion on building fit-for-purpose land administration systems – and especially the underlying spatial framework – includes a range of issue where some of these are clearly political while others relate to social equity, economic constraints, or professional standings. While most of these issues are touched upon above it is useful to address some of the key questions that are often raised in this regard.

**Why should less developed countries not have the same high level spatial framework (or cadastral systems) as is common practice in developed countries?** This question is of course relevant. The response mainly relates to the fact that the framework in most developed countries is developed over a period of about two centuries and in response to societal, institutional and technological developments. Less developed regions of course can't wait for that. Building this spatial framework should be in response to current societal needs and available economic resources. These needs will be best addressed by adopting a fit-for-purpose approach as argued above, and the spatial framework can then be incrementally improved over time in response to societal needs and development.

***What are the constraints and barriers for adoption of fit-for-purpose approaches?***

Constraints and barriers are often perceived to be political constraints, colonial legacy, lack of basic financial resources, and even lack of political will. This is compounded by a legal framework with rigid regulations that does not allow for a more flexible approach. However, this may not be entirely true. Politicians will often rely on professional bodies to advise on specific professional issues. These groups of professionals, such as lawyers, surveyors, planners, etc., are highly educated and act as custodians of existing land administration systems mainly developed by colonial powers and serving mainly the elite. It is no surprise that their professional codes support the existing systems, and there are many examples of resistance to change that will challenge their position. However, by including all land in the formal land administration systems, the land professionals will make a more significant contribution to social development and, at the same time, also enlarge their functions and clientele.

***What are the key benefits?*** Experience shows that a fit-for-purpose approach is adopted mainly when there is strong political leadership for change in support of secure land rights for all. This kind of leadership, so to say, bypasses the professional arguments by setting a deadline for completing the project of identification and registration of land rights. By setting a firm deadline – say five years as was the case in Rwanda – there is no way this can be accomplished using the traditional field surveys.

Instead, new approaches have to be developed while still meeting the overall land reform aim and objectives. In this situation, the fit-for-purpose approach is the obvious choice. It is participatory and can be accomplished by using less professional personnel in the field. The use of imageries/orthophotos enables a number of further uses for land management, and the process is flexible to accommodate both in terms of accuracy needs and budgetary allowance.

Benefits arise by achieving a functional system covering all land and people within a short time, for relatively low and affordable costs, and supporting incremental improvement when relevant and required. This again will enable achievement of political aims and objectives in relation to economic growth, social and gender equity, and environmental sustainability.

***What are the opportunities for Land Professionals?*** Even if the land professionals may to some extent be reluctant to comply with this kind of fit-for-purpose approach, it actually offers a range of opportunities. Firstly, the land professionals will obtain an increased client base by being able to serve the total population rather than only a small elite. Furthermore, the approach implies that land professionals will undertake a more managerial role in relation to managing and using the land related data rather than just creating them. The land professionals will be responsible of the process for establishing the system and also for training, managing and supporting the locally trained staff to carry out the field work. This managerial role also includes quality assurance and auditing as well as custodians of land information management. In the longer term the professional status of the land professionals will be improved through contributing to the overall aims and objectives for societal development.

The profession is being seriously challenged to solve land issues faster. Land professionals are at a very significant juncture and if a comprehensive journey of change is not successful then other professions or government generalists will most possibly fill the vacuum. Land professionals need to seize this moment and great opportunity.



© Stig Ehemark

Settlements in Ulaanbaatar, Mongolia.



© Stig Ehemark

Rice fields, Ho Chi Minh region, Vietnam.

## **Case: Land Tenure Regularisation in Rwanda**

Rwanda implemented a well-functioning Land Information System through a program called Land Tenure Regularisation. Nationwide systematic land registration started after piloting in 2009. The goal was to provide legally valid land documents to all rightful landholders and the program was completed in 2013. A general boundaries approach was used and data were collected in a highly participatory manner. For provision of geospatial data high-resolution ortho-photos and satellite imagery was used. Teams of locally recruited and specially trained 'para-surveyors' outlined the parcel boundaries on the imagery printouts that were scanned, geo-referenced and digitised. Printouts of the parcel plans became part of the legal parcel ownership document. The non-spatial data relating to owners' rights and particulars were captured in claim registers by legally constituted adjudication committees.

The information from the registers was entered into the Land Tenure Regularisation Support System, from which titles were processed and printed for first issuance. A Land Administration Information System is used for processing transactions and for updating the register. In May 2013 about 10.4 million parcels were registered and 8.8 million of printed land lease certificates had been issued. The unit costs were about 6 USD per parcel.

The expected achievements for Rwanda are social harmony arising from reduced land conflicts and secure tenure, increased investment in land, greater land productivity and an increased contribution of land as an economic resource towards national development. There were not many qualified surveyors in the country. However, a land surveying programme to train Geomatics engineers is underway.



© Co.Meijer

Adjudication process in Rwanda.

Implementation was a shared responsibility between a wide range of stakeholders, with Rwanda Natural Resources Authority taking the lead. Development partners led by the United Kingdom's Department for International Development were involved and other partners included Swedish International Development Cooperation Agency, European Union, Royal Netherlands Embassy and IFAD.

*Source: Dr Emmanuel Nkurunziza and Didier Sagashya  
Rwanda Natural Resources Authority*

## **Case: Communal Land Registration in Namibia**

Communal land is vested in the State by the Constitution. The State has a duty to administer communal lands in trust for the benefit of the communities residing on these lands and for the purpose of promoting the economic and social development of the Namibian people.

Since 2003, the Ministry of Lands and Resettlement, together with the Communal Land Boards, have administered communal land in Namibia. In this context, new methods using aerial photos have been devised to fast track the process of land registration. By these means, the registration process is now proceeding eight times faster, is more accurate, is less prone to mistakes, and is more cost effective. The Namibian Communal Land Administration System (NCLAS) has been concurrently developed to provide an improved means of storing data on communal land rights. The NCLAS is more secure, better accessible, and reduces administration time by half.

Previous experiences in the Omusati region have shown that using hand held GPS surveys an average of 10 land rights a day can be mapped in the densely populated areas in the North. In less densely populated areas, parcels are often bigger, which means there is more time needed to walk the boundaries of the parcels. Parcels in those areas are also located further apart increasing travelling time between parcels. All in all the average number of parcels mapped a day by using GPS is estimated to be five parcels per day. However, by using orthophotos, a survey can capture an average of over 40 parcels a day.

The precision of the boundary depends on the type of features used to identify these boundaries. In cases where fences, individual trees or similar features were used, the precision will be high, but when for instance, the middle of a stream or a tree in a thicket was indicated, than the precision of the boundary is much lower (but often still reflects the real precision of the boundary on the ground). The aerial photos used to map parcel boundaries are within an absolute accuracy of two meters.

With a ground resolution of one meter, a final accuracy of the land register of better than 10 meter can be easily manageable. Besides this increased accuracy as compared to handheld GPS, the benefits of the “what-you-see-is-what-you-get-properties” deriving from the aerial photos has vastly reduced the number of mistakes made and allows the land right holders to verify their boundaries on the land right certificate.



Delineated boundaries presented with aerial photo.  
Fragment of a Certificate of Registration of Customary  
Land Rights.

*Source: Donatha Kapitango, Ministry  
of Lands and Resettlement, Namibia  
Marcel Meijs, German Development  
Agency (now: GOPA Worldwide  
Consultants)*

## **Case: Adaptation of the STDM in Eastern Caribbean**

The Organisation of Eastern Caribbean States (OECS), with the assistance the Australian Government and UN-HABITAT, is developing regional land policy guidelines addressing the critical land issues. These guidelines are to represent an integrated approach to land policy development as the basis for land administration frameworks for the member states. The member states of the OECS have pledged political support by mandating their land agencies to participate in the initiative and have thus created a project-based momentum upon which the development of the STDM (Social Tenure Domain Model) can derive stakeholder support.

In the context of the OECS, a reasonable goal of STDM implementation is its integration with or updating of the formal land administration systems. To achieve this, all data must be collected using the same structure: Party – Social Tenure Relationship – Spatial Unit. It must also be determined in advance whether the ‘Party’ would be a natural person, a household, or family. The social tenure relationships are defined in a code list, which is a universal set of all the possible instances in the OECS. It includes: ‘Family Land Tenure’ (this can be ‘Cognatic’ or ‘Traditional’ – depending on descent lines, or it can be ‘Formal’); ‘Informal Occupation’ (this can be ‘State’, ‘Private’ or ‘Reserve’) or ‘Common Trust’ (only at Barbuda). Determination must also be made as to what comprises the ‘Spatial Unit’: the land parcel, the structure, or any other object.

For quick and simple data acquisition, a GPS centroid coordinate can be acquired anywhere on the parcel. Later, as time and resources allow, the precision of the definition of the parcel can be increased. Aerial photography and high resolution satellite imagery are very useful resources in establishing parcel index maps in informal settlements. Such is the case of New Sandy Bay Village at St. Vincent & the Grenadines, where original surveys were commissioned by the colonial administration. This data have since been digitally draped over aerial photography.



© Jamal Browne

Village settlement, St. Vincent and the Grenadines.

For rural lands, existing imagery (printed at 1:2,500 scale) can be used for data collection. Features such as roads, rivers and structures can be used to guide parties involved. Boundaries can be drawn and then scanned. Data quality can always be improved as social tenures are progressively formalised if desired.

*Source: Charisse Griffith-Charles, Sunil Laloo and Jamal Brown, University of the West Indies*

## **Case: Land Registration and Cadastral Mapping in Ethiopia**

Over the past 13 years, Ethiopia has had much success in completing “1<sup>st</sup> 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: “2<sup>nd</sup> level certification”. Unit costs are estimated as less than 8 USD per parcel.



© Christian Lemmen

Boundary delineation, Ethiopia.

*Source: Zerfu Hailu (Niras Project) and David Harris*



## Case: The Quest for Land Titling in Indonesia

Indonesia is a clear case of where current approaches to land titling, which are dependent on conventional approaches to surveying and adjudication, are not fit-for-purpose. A national coverage of registered rights for individual and communities cannot be achieved without significant legal, policy and technical reforms.

Land registration in Indonesia operates under a dual system of land administration with around 70 percent of the land mass considered to be forestry land and covered by the Basic Forestry Law and the remaining 30 percent considered to be non-forestry land and covered by the Basic Agrarian Law. Only non-forestry land may be titled. Rights cannot be secured over forest land where around 20 percent of the population live; mainly indigenous peoples, and this includes 33,000 villages.

For the non-forest land, only around 40 percent of the nation's estimated 90 million land parcels are titled. During the period since 1994, three World Bank supported programs collectively achieved almost 5 million land parcels registered with titles distributed to owners. However, during this same period, the estimated number of land parcels increased from around 70 to about 90 million through informal subdivisions associated with inheritance and other fragmentation. The annual increase in the number of new land parcels is twice the capacity of the National Land Agency (BPN) to survey, adjudicate, register and distribute titles – using the conventional approaches to land surveying and registration.

In July 2012 the government announced a clear strategy to address these issues by creating *One Map* and accelerating the gazettal of the official Forest Estate

so that non-forest land areas eligible for registration are clearly demarcated and known. *One Map* is designed to adopt geospatial technology and also community stakeholders' mapping inputs (through crowd-sourcing), including indigenous communities' land maps. Forest land-use is permitted only for recognized customary rights.

Public confidence in, and awareness of, the land administration are arguably low, so the majority of the land holding population stay outside of the formal system. The adoption of a fit-for-purpose land administration system in Indonesia would be a key contributor to overall reform of the land sector and good governance.



© Stig Enemark

Tea field worker, Indonesia.

Source: Keith Bell, World Bank

## 8 CAPACITY DEVELOPMENT FOR LAND ADMINISTRATION

“Don’t start what you can’t sustain”. This simple phrase indicates that measures for capacity development must be established up front when starting a project on building sound land administration systems that are sustainable. The biggest challenge is often to ensure effective and efficient management of the systems once they are established.

Capacity development is “The processes whereby people, organisations and society as a whole unleash, strengthen, create, adapt and maintain capacity over time” (OECD-DAC, 2006). Capacity development is not only about human resources and skills – it is just as much about building sustainable and trustable institutions for running the systems. Capacity development must be seen in a wider context of providing the ability of organisations and individuals to perform functions effectively, efficiently and sustainably. This also includes the requirement to address capacity needs at institutional and even more broadly at societal levels. Capacity development does not imply that there is no capacity in existence; it also includes retaining and strengthening existing capacities of people and institutions to perform their tasks and deliver services.

Measures of education and training are of course important at all levels from university degrees to one-year programmes for training land clerks. This should ensure that there is a sustainable long-term capacity of educated and trained personnel in both the public and the private sector to operate the system. Whether short or long-term in nature, all capacity development initiatives work best if they are viewed as a process, not as an event. In the case of good practice training, such a process invariably should comprise some key components, namely: assessment, design, event delivery, follow-up and monitoring and evaluation.

Capacity is the power of something – a system, an organisation or a person to perform and produce properly. Therefore, the term Capacity should be seen as two-dimensional including: Capacity Assessment and Capacity Development. The assessment part is a diagnosis essential in the formulation of coherent strategies for capacity development. This is a structured and analytical process whereby the various dimensions of capacity are assessed within a broader systems context, as well as being evaluated for specific entities and individuals within the system. Capacity assessment may be carried out in relation to donor projects, e.g. in land administration, or it may be carried out as an in-country activity of self-assessment – see FIG Publication No. 41 on Capacity Assessment in Land Administration (FIG, 2008). Capacity development, on the other hand, should achieve relevant skills and knowledge improvements and behavioural change at three levels: societal, organisational and individual:

*Societal level* is the highest level within which capacity initiatives may be cast and can be seen as the enabling environment level. Capacity development at societal level should focus on imparting knowledge of key issues as well as skills for policy formulation and implementation. Capacity development at this level focuses on advocacy, awareness creation, and knowledge sharing and dissemination.

*The organisational level* includes formal organisations such as government agencies, private sector organisations, or informal organisations such as community based or voluntary organisations. For the public sector this may include institutional and organi-

sational reforms, such as legal frameworks, processes and procedures, and awareness in terms of incentives and accountability. Professional bodies may use various means to ensure the awareness and up-to-date skills of their members, e.g. through licensing requirements and means of continuing professional development. Community based organisations may learn advocacy skills to improve awareness, creation, knowledge sharing, and citizen empowerment.

*The individual level* will address the need for individuals to function efficiently and effectively within the entity and within the broader system. Such Human Resource Development (HRD) is about assessing the capacity needs and addressing the gaps through adequate measures of education and training. This should include technical skills as well as operational and adaptive capacities to perform the relevant tasks. This will mainly take the form of short-duration good practice training, as well as more formal training leading to academic certificates, diplomas, degrees and postgraduate qualifications, and other skills acquisition and research.

Guidance for capacity development within land policy, land governance and land administration can be found in the Capacity Development Framework for Land Policy in Africa, currently being developed to support land policy implementation as part of the Africa Land Policy Initiative



© Siliu Eneemark

Customary tenure area, Mozambique.

## 9 THE WAY FORWARD

A wide range of initiatives under the umbrella of the Global Land Agenda are delivering: voluntary guidelines on responsible governance of tenure; effective approaches to creating land policy frameworks; monitoring and evaluation tools to strengthen land policies and associated operations; and tools for implementing land administration solutions. However, despite these interventions progress is limited, and will remain restricted, due to the lack of comprehensive information on the evidence of land rights and associated security of tenure. Although policy frameworks and guidelines are essential for good land governance, the real bottleneck is in how land professionals capture and maintain evidence of land rights. Current solutions are not scalable, even with new emerging generations of technology solutions, and will never realistically deliver security of tenure to the remaining 75 percent of the world's population in appropriate timeframes.

This current security of tenure vacuum restricts access to formal land markets, severely limits engagement with economic development and is increasingly generating social instability through land disputes and land grabbing. Without access to land and security of tenure, the poor and the disadvantaged will remain trapped in poverty. This fit-for-purpose approach being proposed here offers land professionals the opportunity to make a significant improvement in global land issues. It is a realistic, participatory approach that is scalable and could make a noticeable difference in the intermediate timeframe. However, this is potentially a controversial paradigm shift for land professionals as it implies a radical change in role for the profession; a transition from a field operational to a management role.

As with all cultural and behavioural change, it has to be well managed. Otherwise opposition to change will stop this paradigm shift happening or, equally as bad, slow the process down. Ensuring advocacy for change and providing support to change management is a key role for organisations like the World Bank, UN-FAO, UN-HABITAT, FIG and other land related professional bodies. The following steps should be supported by these organisations:

- The politicians and decision makers in the land sector are key in this change process and need to become advocates of change through understanding the social and economic benefits of this journey of change. This will then allow any legal framework and professional barriers to be dismantled.
- The hearts and minds of land professionals need to be turned to fully understand and embrace the fit-for-purpose approach. This will require the benefits of such a move to be clearly articulated so that any perceived threats are dissipated.
- Effective capacity building is fundamental to success; society must understand that these simpler, less expensive and participatory methods are just as effective and secure as traditional surveying methodologies; and formal organisations such as government agencies, private sector organisations, or informal organisations such as a community based or voluntary organisations need to ensure the awareness and up-to-date skills of their members and staff.
- The largest change will be focused on the public sector where this may involve institutional and organisational reforms, including legal framework, processes and procedures, and awareness in terms of incentives and accountability.

- To drive this change process there must be effective knowledge sharing to ensure the lessons learned and good practice are widely implemented.

It is hoped that this publication will pave the way forward towards implementing sustainable and affordable land administration systems enabling security of tenure for all and effective management of land use and natural resources. This, in turn, will facilitate economic growth, social equity, and environmental sustainability.



© Stig Eneemark

Villa de Leyva, Columbia.

## REFERENCES

- Byamugisha, F. (2013): Sharing Africa's Land for Shared prosperity. A Program to Scale Up Reforms and Investments. World Bank, Washington.  
<http://www.scribd.com/doc/144377306/Securing-Africa-s-Land-for-Shared-Prosperity>
- Enemark, S. (2013): Fit-for-purpose: Building Spatial Frameworks for Sustainable and transparent Land Governance. Paper presented at World Bank Conference on land and Poverty, Washington D.C., 8–11 April 2013.  
[http://www.conftool.com/landandpoverty2013/index.php?page=browseSessions&form\\_session=21&presentations=show](http://www.conftool.com/landandpoverty2013/index.php?page=browseSessions&form_session=21&presentations=show)
- FAO (2012): Voluntary Guidelines on the Responsible Governance of Tenure of Land, Fisheries and Forests in the Context of Food Security. Rome.  
<http://www.fao.org/docrep/016/i2801e/i2801e.pdf>
- FIG (2008): Capacity Assessment in Land Administration. FIG Publication No. 41. FIG Office, Copenhagen.  
<http://www.fig.net/pub/figpub/pub41/figpub41.htm>
- FIG/GLTN (2010): The Social Tenure Domain Model. FIG Publication No. 52, FIG Office, Copenhagen, Denmark.  
<http://www.fig.net/pub/figpub/pub52/figpub52.htm>
- FIG/WB (2010): Land Governance in Support of the Millennium Development Goals – A new agenda for land professionals. FIG Publication No. 45, FIG Office, Copenhagen, Denmark.  
<http://www.fig.net/pub/figpub/pub45/figpub45.htm>
- G8 (2013): Open Data Charter.  
<https://www.gov.uk/government/publications/open-data-charter/g8-open-data-charter-and-technical-annex>
- ISO (2012). ISO 19152:2012, Geographic Information – Land Administration Domain Model. Edition 1, Geneva, Switzerland.  
[http://www.iso.org/iso/catalogue\\_detail.htm?csnumber=51206](http://www.iso.org/iso/catalogue_detail.htm?csnumber=51206)
- McLaren, R. (2012). Crowdsourcing Support of Land Administration. Paper presented at World Bank Conference on land and Poverty, Washington D.C., 23–26 April 2012.  
[http://www.landandpoverty.com/agenda/pdfs/paper/mclaren\\_robin\\_paper.pdf](http://www.landandpoverty.com/agenda/pdfs/paper/mclaren_robin_paper.pdf)
- OECD-DAC (2006): The Challenge of Capacity Development: Working towards Good Practice. Paris.  
<http://www.oecd.org/dataoecd/34/29/42389282.pdf>
- Transparency international (2013): Corruption perception Index 2013.  
<http://www.transparency.org/cpi2013/results>
- UN (1992). Agenda 21 on Sustainable Development.  
<http://sustainabledevelopment.un.org/content/documents/Agenda21.pdf>

- UN (2000): United Nations Millennium Declaration. Millennium Summit, New York, 6–8 September 2000. UN, New York.  
<http://www.un.org/millennium/declaration/ares552e.pdf>
- UN (2013): A New Global Partnership: Eradicate Poverty and Transform Economies through Sustainable Development. New York.  
<http://www.post2015hlp.org/wp-content/uploads/2013/05/UN-Report.pdf>
- UN-HABITAT, GLTN (2008): Secure Land Rights for All.  
<https://www.responsibleagroinvestment.org/sites/responsibleagroinvestment.org/files/Secure%20land%20rights%20for%20all-UN%20HABITAT.pdf>
- UN-HABITAT, GLTN (2012): Handling Land – Innovative Tools for Land Governance and Secure Tenure. Nairobi.  
<http://www.unhabitat.org/pmss/listItemDetails.aspx?publicationID=3318>
- Williamson, Enemark, Wallace, Rajabifard (2010): Land Administration Systems for Sustainable Development. ESRI Academic Press, Redlands, California, USA.  
<http://www.esri.com/landing-pages/industries/land-administration/e-book#sthash.Lp4BYcKW.vmY1XWxG.dpbs>
- World Bank (2011): Land Governance Assessment Framework. Washington,  
[http://www-wds.worldbank.org/external/default/WDSContentServer/WDSP/IB/2011/11/24/000386194\\_20111124011109/Rendered/PDF/657430PUB0EPI1065724B09780821387580.pdf](http://www-wds.worldbank.org/external/default/WDSContentServer/WDSP/IB/2011/11/24/000386194_20111124011109/Rendered/PDF/657430PUB0EPI1065724B09780821387580.pdf).
- World Bank (2013a): Millennium Development Goals and Beyond. World Bank newsletter, Issue 12, November 2013.  
[http://siteresources.worldbank.org/INTPROSPECTS/Resources/334934-1327948020811/MDGsAndBeyond\\_Newsletter\\_November2013.pdf](http://siteresources.worldbank.org/INTPROSPECTS/Resources/334934-1327948020811/MDGsAndBeyond_Newsletter_November2013.pdf)
- World Bank (2013b): Doing Business.  
<http://www.doingbusiness.org/~media/GIAWB/Doing%20Business/Documents/Annual-Reports/English/DB13-full-report.pdf>

## ABOUT THE AUTHORS



**Stig Enemark** is Honorary President of the International Federation of Surveyors, FIG (President 2007–2010). He is Professor of Land Management at Department of Development and Planning, Aalborg University, Denmark.

Email: [enemark@land.aau.dk](mailto:enemark@land.aau.dk)



**Keith Clifford Bell** joined the World Bank in 2003 where he has responsibility for leading the World Bank's land administration and management program throughout the East Asia Region. Previously he was the Surveyor General of Victoria, Australia.

Email: [kbell@worldbank.org](mailto:kbell@worldbank.org)



**Christiaan Lemmen** is international consultant at Kadaster International, The Netherlands. He is guest researcher at Twente University (Faculty ITC), The Netherlands, and the chair of the Working Group 7.1 "Pro Poor Land Tools" of FIG Commission 7.

Email: [Chrit.Lemmen@kadaster.nl](mailto:Chrit.Lemmen@kadaster.nl)



**Robin McLaren** is director of the independent consulting company Know Edge Ltd, UK. He has supported many national governments in formulating land reform programmes and National Spatial Data Infrastructure (NSDI) strategies.

Email: [robin.mclaren@KnowEdge.com](mailto:robin.mclaren@KnowEdge.com)



## FIG PUBLICATIONS

The FIG publications are divided into four categories. This should assist members and other users to identify the profile and purpose of the various publications.

### FIG Policy Statements

FIG Policy Statements include political declarations and recommendations endorsed by the FIG General Assembly. They are prepared to explain FIG policies on important topics to politicians, government agencies and other decision makers, as well as surveyors and other professionals.

### FIG Guides

FIG Guides are technical or managerial guidelines endorsed by the Council and recorded by the General Assembly. They are prepared to deal with topical professional issues and provide guidance for the surveying profession and relevant partners.

### FIG Reports

FIG Reports are technical reports representing the outcomes from scientific meetings and Commission working groups. The reports are approved by the Council and include valuable information on specific topics of relevance to the profession, members and individual surveyors.

### FIG Regulations

FIG Regulations include statutes, internal rules and work plans adopted by the FIG organisation.

### List of FIG publications

For an up-to-date list of publications, please visit [www.fig.net/pub/figpub](http://www.fig.net/pub/figpub)

## ABOUT FIG



International Federation of Surveyors is the premier international organization representing the interests of surveyors worldwide. It is a federation of the national member associations and covers the whole range of professional fields within the global surveying community. It provides an international forum for discussion and development aiming to promote professional practice and standards.

FIG was founded in 1878 in Paris and was first known as the *Fédération Internationale des Géomètres* (FIG). This has become anglicized to the *International Federation of Surveyors* (FIG). It is a United Nations and World Bank Group recognized non-government organization (NGO), representing a membership from 120 plus countries throughout the world, and its aim is to ensure that the disciplines of surveying and all who practise them meet the needs of the markets and communities that they serve.







Land administration is basically about people. It is about the relation between people and places, and the policies, institutions and regulations that govern this relationship.

Land administration systems provide a country with an infrastructure for implementation of land policies and land management strategies in support of sustainable development. In many developed countries these systems are well developed and provide a kind of backbone in society in support of efficient land markets and effective land-use management. In most less developed countries, however, less than 30 percent of the land is included in the formal systems of land registration and administration that serve mainly the elite.

In less developed countries there is an urgent need to build simple systems using a flexible and affordable approach to identifying the way land is occupied and used. The systems should include all land and provide security of tenure for all. When considering the resources and capacities required for building such systems, the more advanced concepts as predominantly used in developed countries may well be seen as the end target but not as the point of entry. When assessing technology and investment choices the focus should be on a “fit-for-purpose approach” that will meet the needs of society today and can be incrementally improved over time.