



# Catalyzing Innovation

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WASHINGTON DC, MARCH 25-29, 2019



## **BRIDGING THE SECURITY OF TENURE GAP: FIT-FOR-PURPOSE INITIATIVES**

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**Paper prepared for presentation at the  
“2019 WORLD BANK CONFERENCE ON LAND AND POVERTY”  
The World Bank - Washington DC, March 25-29, 2019**

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WASHINGTON DC, MARCH 25-29, 2019



## ABSTRACT

In the article we will describe several examples of fit for purpose land administration methodologies in different continents of the world based on the recent experiences of Kadaster. We will briefly describe initiatives from Latin America, Africa and Asia and discuss more in detail the FFP methodologies that are being implemented and the lessons learned from practice. Lessons learned, that result in innovations of methodology, technology and approaches. There is an urgent need for the administration of property and land use rights worldwide as a basis for inclusive social and economic growth. The advantages of a well-organized land administration are many fold. It provides legal security to people. It attracts investments and is a condition for land governance. Legal security is an important incentive for people to invest further in their property.

Private parties will not easily invest in property when the ownership status is unclear, or when unknown limitations are imposed on the property. Without legal proof of ownership, access to credit to enable investments is often hard to attain. Land administration is a basic condition for good land governance. It is a vital infrastructure for a government: not only to raise taxes and thus increase the much needed income for the government, but also in support of policy and decision making for sustainable development.

**Key Words:** Access to Land; Land Administration; Land Management; Fit-For-Purpose Land Administration; Colombia, Nepal, Indonesia, Mozambique; Lessons learned; Legislation; Low Cost Technology; Security of Tenure; Standards; Social Tenure Domain Model; e-Governance; STDM; Land Administration Domain Model; LADM.



# Catalyzing Innovation

ANNUAL WORLD BANK CONFERENCE ON LAND AND POVERTY  
WASHINGTON DC, MARCH 25-29, 2019



## 1. INTRODUCTION

Land Administration is in support to implementation land policies (UN ECE, 1996). Purposes can be related to issues as land rights for all, social justice, women's access to land and sustainable land use. Legal security is an important incentive for people to invest further in their property. Land administration attracts investments and is a condition for land governance and spatial planning: development of smart and resilient societies, sustainable land use, climate change response, disaster prevention, protected environment, slum upgrading, access to housing, poverty eradication, city management, access to basic infrastructure. The advantages of land administration being so obvious, how can it be that 70% of the people – land relations in the world is still outside the formal systems? Are the systems only designed to serve the happy minority who can afford the registration costs and understand the cumbersome procedures to get their parcel registered?

Many conventional land administration projects have not been able to bridge this gap between the minority inside and the majority outside the system. It has to do with many factors such as weak institutions responsible for land governance, with inappropriate or contradictory laws and regulations, complexity, high standards, high costs, lack of capacity, inadequate maintenance, long implementation time frames and procedures that are not aligned with the local context and conditions.

To continue in the conventional way will not lead to inclusion of the remaining 70% within our lifetime. It is time for new, innovative approaches to land administration. Time to build affordable, inclusive, scalable and sustainable systems that quickly provide complete coverage of the tenure situation in territories. As Enemark, McLaren and Lemmen remark (UN Habitat/GLTN/Kadaster, 2016): “The Fit-For-Purpose (FFP) approach to land administration has emerged as a game changer and offers a practical solution to provide security of tenure and to control the use of land.”

Based on our experiences in the implementation of FFP methodologies in projects over the last few years, we will define lessons learned in four selected countries: Colombia, Nepal, Indonesia and Mozambique. Some lessons are of a more general nature, and other lessons are country and



# Catalyzing Innovation

ANNUAL WORLD BANK CONFERENCE ON LAND AND POVERTY  
WASHINGTON DC, MARCH 25-29, 2019



context specific. These lessons are significant for scaling up and ‘scaling forward’ FFP land administration.

In the following chapters we will describe examples from those countries of Fit-For-Purpose land administration approaches and methodologies. Then the approaches, methodologies and results will be discussed, formulated as ‘lessons learned’. But firstly, the concepts of Fit-For-Purpose Land Administration is introduced in a nutshell.

## **2. FIT-FOR-PURPOSE APPROACHES IN LAND ADMINISTRATION**

The Fit-For-Purpose (FFP) Concept has been developed in reaction to the challenges set by the overall global sustainable development agenda (Enemark and McLaren, 2017). This agenda cannot be achieved without having good land governance in place - including the operational component of land administration systems. The FFP concept should therefore be seen as an enabler for implementing these global standards in developing countries.

The introduction of the Fit for Purpose Land Administration can be considered a new way of thinking in achieving faster, cheaper and more appropriate land administration systems for the world. Appropriate land administration is defined by four aspects. Not the professional or technological standards but the requirements of users (or citizens) should be the starting point; then the quality of the data and systems should be good enough, the timeframe to collect and register the data should be acceptable and the price of development and maintenance should be affordable.

The Fit-For-Purpose approach (FIG/World Bank, 2014; UN-Habitat/GLTN/Kadaster, 2016) argues for cost-effective, time-efficient, transparent, scalable and participatory land administration, including Participatory Surveying, Volunteered Land Administration and Crowdsourcing. The principle of the Fit for Purpose approach is that the spatial, legal and institutional frameworks for Land Administration are in balance in such a way that tenure security can be established and maintained in a timely and affordable way, always aiming at the local, regional or national needs.

In some cases it is sufficient to identify visual boundaries in the field using imagery. Land administration systems are as plain as possible at the start and can improve over time whenever



# Catalyzing Innovation

ANNUAL WORLD BANK CONFERENCE ON LAND AND POVERTY  
WASHINGTON DC, MARCH 25-29, 2019



necessary or relevant. It is a dynamic process: purposes evolve as e.g. the economy and technology develop over time, and so does the administration. Such an approach must be gender sensitive, transparent and highly participatory and contribute to good governance practices.

### 3. COLOMBIA

The Colombian peace agreement was signed in November 2016 and ended a long during armed conflict between the Colombian state and guerrilla movement FARC. Besides the demobilization of the armed FARC forces a principal point of the agreement is the integral rural reform. After decades of state absence and a history of violence and displacements, farmers in post conflict areas of Colombia are longing for legal security over their land. Therefore, the Colombian government has planned to have a complete nation-wide land tenure coverage in 2023.

The current methods for rural land titling are too complex, too costly and too slow (Molendijk et al. 2018). From the current speed of rural land formalization it is estimated that it might take up to 200 years to cover the whole country. Therefore Kadaster, together with the National Rural Land Agency (ANT), offers a Fit-For-Purpose (FFP) land administration approach (Molendijk et al., 2015; Jones, et al., 2017; Molendijk et al., 2018), being a fast, affordable and participative way to establish tenure security for the rural population of Colombia .

FFP methods are implemented in several pilots in order to adapt the methodology to Colombian circumstances. At the same time, these experiences and lessons learned have to be reflected in the national policy plans. The pilots will be completed by the end of 2020. Other parties involved are the University of Twente (ITC), the Colombian National Land Registry (SNR), the National Rural Cadastre of Colombia (IGAC), the Cadastre of the Department of Antioquia, the Amazon Institute for Academic Research (SINCHI), the District University in Bogotá and the Colombian National Planning Agency (DNP). Within the framework of the project, additional agreements have been signed with the SNR and the University of Distrital in Bogotá.

In 2017 two pilot areas were selected, where the FFP methods were applied after an earlier successful proof of concept. Pilot areas should be part of the Government's post conflict priority zones. The local communities should have access to legal land rights as a top priority, since their participation is an essential element in the success of the FFP method. As well, they should be



# Catalyzing Innovation

ANNUAL WORLD BANK CONFERENCE ON LAND AND POVERTY  
WASHINGTON DC, MARCH 25-29, 2019



representative for the Colombian rural area as a whole and they should allow for rural economic growth opportunities. One pilot area in the municipality of Vistahermosa and one in the municipality of Apartadó, were selected.

The creation of local awareness is a crucial factor for success. Especially in post conflict areas, people tend to mistrust governmental plans and actions. Together with ANT and the local village boards, information meetings were organized to reconfirm the commitment of the local farmers, to obtain information on the number of families and farms sizes, and to explain the procedures and field work. The local communities were eager to cooperate and welcomed the authorities investing in the development of their areas.

In the FFP approach, field work is a participatory activity. The land farmers indicate the boundaries of their land, recorded by local grassroots surveyors, using high end GPS antennas and a data collection app. Through an interview during the field work, also essential data about the persons are collected in order to link people to their land. This includes a photograph of the id-card of the people holding informal land use rights or possession, occupation or formal rights. An essential part of the FFP approach is the public inspection of the survey results. Do neighbors agree on their boundaries? Does the community agree with the collected data? Do the data reflect the reality? Can they confirm that the current users are indeed the rightful claimants?

When neighbors agree on their common boundary, they are invited to sign the boundary act: an agreement about their common boundary. This boundary act, signed by all neighbors around the parcel, is a precondition for acquiring a land title. As each land user points out his/her own boundaries during the public inspection, overlapping claims may arise. In such cases, mediation by ANT and the village board will solve most disputes. The participation of the whole community and the transparency of the FFP process contribute to the agreement about boundaries and the signing of the boundary acts. In both pilot areas this public inspection has taken place in 2018. Despite general expectations the amount of disputes was in fact very low. When scaling up the FFP land administration activities a more structured alternative dispute resolution approach may be necessary. Kadaster is involved in studies on this subject by the World Bank and the SNR.



# Catalyzing Innovation

ANNUAL WORLD BANK CONFERENCE ON LAND AND POVERTY  
WASHINGTON DC, MARCH 25-29, 2019



The methodology has proven to be applicable and able to lead to land titles and tenure security for the rural population of Colombia. The first land titles based on this methodology were handed out late 2018 in attendance of the Dutch Prime Minister, the Colombian Minister of Agriculture, ANT's director, the Dutch Ambassador in Colombia and Kadaster representatives. High level commitment has turned out to be very important for the awareness at national political level about the need to speed up land titling and switch from traditional methods of land titling to a Fit-For-Purpose methodology.

Institutional cooperation is established in the context of the Kadaster project and other land administration projects in Colombia. It should be noted that Colombia developed a land administration infrastructure based on an International Standard: the Land Administration Domain Model – under implementation in Colombia with cooperation from Switzerland.

## **4. NEPAL**

Two major earthquakes struck Nepal on 25 April and 12 May 2015, which devastated many parts of the country. These were the largest earthquakes, in magnitude and numbers of affected people, for over 80 years in Nepal. The Government of Nepal recognised the need to prepare a comprehensive reconstruction plan after assessing the damage, loss and recovery needs, which lead to the Post Disaster Needs Assessment (PDNA). This assessment indicated that land and the access to land is and was of a major concern before and after the earthquakes.

Many land issues after the earthquakes are about the accessibility and return to land, which is unsafe; resettlement processes; types of tenure, which are not recorded; and land disputes; and landlord-tenant disputes. The growing competition over land and natural resources and poor land use planning boosted this competition and disputes even further. Reconstruction efforts were focusing on households that could prove their land ownership with official title documents, whereas vulnerable groups with tenure insecurity (especially woman, squatters, agrarian bonded labours) were further pushed away into a disadvantaged position and excluded from the benefits of the reconstruction program. Hence, a big and urgent need arose to understand as well as discuss the effective and efficient way to address land tenure and access to land in Nepal. This is relevant in support to the implementation of a National Land Policy. The formulated draft Land



# Catalyzing Innovation

ANNUAL WORLD BANK CONFERENCE ON LAND AND POVERTY  
WASHINGTON DC, MARCH 25-29, 2019



Policy has undergone intensive stakeholders' consultations at the provincial and local levels.

This land policy is scheduled to undergo further stakeholders' consultations before submission to the Government of Nepal. (Dijkstra et al., 2017; Unger et al. 2019).

The constitution of Nepal advocates for ending all forms of discrimination and calls for creation of an egalitarian society, which is closely linked to citizens' equal access to land. Further there is a comprehensive attempt to link the policy to national land needs and concerns and to recognize the complexity and plurality of land tenures that are in existence.

Fit-For-Purpose Land Administration approaches have the potential to support the government of Nepal in the recovery from the earthquakes as well as in disaster preparation and mitigation processes as well as to address the informal and non-formal tenures. In order to explore and built knowledge related to Fit-For-Purpose Land Administration, where all people to land relationships are included, a team of UN-Habitat Global Land Tool Network, the Netherlands' Cadastre, Land Registry and Mapping Agency (Kadaster) and the Human Right Awareness and Development Center (HURADEC) conducted a field test of the Fit-For-Purpose Land Administration methodology in the post disaster context in Nepal. The field test involved the implementation of relevant land tools to identify the specific tenure issues related to relocation, informal tenure and reconstruction of settlements.

The methodology of the field test started by agreeing among the community and stakeholders on an approach which focused on capacity building on the use of the Fit-For-Purpose Land Administration tools, the Social Tenure Domain model (STDM), participatory enumeration and visual boundary approach. A household questionnaire was developed and used to identify the level of tenure security; the scale of vulnerability, exposure and hazard (the three disaster risk drivers). Also their grant status; and basic household economy was recorded. During the household enumeration, the village residents' current house was mapped using GPS devices. High-resolution satellite imagery was used to identify the farmland related to the households. In order to do so, the images were printed at A0 paper at a scale of 1:750, which was sufficient to allow the community to easily understand the images and identify their farmland, mainly terraces of 3 meters width. HURADEC performed the data collection in the field together with the local community. The collected data were entered into and analysed by STDM, a pro-poor and gender



# Catalyzing Innovation

ANNUAL WORLD BANK CONFERENCE ON LAND AND POVERTY  
WASHINGTON DC, MARCH 25-29, 2019



responsive open-source land information software, developed by UN-Habitat - GLTN. The whole process was participatory and sustainable as it involved the community and local stakeholders to participate in the meetings, planning, data collection and validation of the results and enable them to incorporate the approach.

From the field test in Dolakha land tenure issues in a post disaster context were identified, as well as the gap and challenges of the current land policy. This includes issues as extra attention to the information needs for disaster management; fixed boundary or visual boundary approaches; quality improvement of the existing maps using imagery; processes as informal to formal conversion (rights and tenures); introduction of linked data between registry and cadastre and conflict and dispute resolution.

Securing tenure of vulnerable groups and access to land for housing and resettlement is one of the major aspects in the post-earthquake stage. Addressing this, will enable vulnerable groups to respond and mitigate to future occurring earthquakes and secondary hazards such as landslides and avalanches.

The Social Tenure Domain Model is recommended in the Fit-For-Purpose implementation strategy for Nepal from May 2018 (Government of Nepal, 2018). The implementation of this model is a first step in institutional cooperation between registry and cadaster.

## **5. INDONESIA**

Indonesia has the ambition to register all of its' estimated 110 million parcels before 2025 in a national system. The Ministry of Agriculture and Spatial Planning (ATR/BPN) is tasked with the realisation of this huge effort. 45 million parcels were already documented in one form or other. These registrations need to be incorporated into ATR/BPN's national land registration system through a sporadic regularisation process. The remaining 65 million parcels will be registered under a systematic individual land registration program.

ATR/BPN is not the only institute with a land administration mandate. Forest land is administered by the Ministry of Forestry and administrative boundaries are administered by the Ministry of Internal Affairs. Also, many Government Departments and Agencies have the mandate to assign land use concessions. These organisations have always administered land to



# Catalyzing Innovation

ANNUAL WORLD BANK CONFERENCE ON LAND AND POVERTY  
WASHINGTON DC, MARCH 25-29, 2019



suit their own mandates and purposes, creating mutually inconsistent land data silos. The need to harmonise these data into one consistent and overarching land data set is demonstrated by the adoption of the One Map initiative by the Government of Indonesia. Essentially, One Map is about harmonising content, procedures, formats and eventually systems of land administration in Indonesia. ATR/BPN has to fulfil its land registration ambitions in good coordination with this One Map harmonisation context.

ATR/BPN has adopted the concept of Fit-for-Purpose land administration with a multipath approach to accelerating, improving and making the land registration process more economical to the government and more affordable to individual citizens (Van den Berg et al., 2018).

The first path embodies the enhancement of both internal and private sector surveying capacity. The second path is about diversification of survey and mapping qualities to suit specific land administration goals. Two mapping qualities were defined to suit these specific goals. One quality to support land policymaking and basic security of tenure, the other to support the traditional land administration purposes: provision of tenure security, enabling taxation and valuation and facilitating spatial planning.

The third path is to explore the potential of participative approaches for accelerating land registration. For this approach ATR/BPN seeks to make optimal use of the common cadastral knowledge that exists amongst the communities of (mostly) rural Indonesia.

For this purpose, Kadaster has explored the activities of such civil society organisations as JKPP and AMAN who concentrate on delimitation (meaning identification and survey) of ancestral land. This requires effective sensitisation of the community as well as effective survey practices. These delimitations serve the purpose of creating an inventory of land use types and their boundaries, based on appropriate historical and socio-cultural research. In fact, these delimitations serve to literally put the communities on the map as socially, culturally and economically relevant entities. Although the outputs of these delimitations are not directly suitable for incorporation into the national level land registrations, the information they provide is relevant to the One Map harmonisation process and to the various holders of land administration mandates.



# Catalyzing Innovation

ANNUAL WORLD BANK CONFERENCE ON LAND AND POVERTY  
WASHINGTON DC, MARCH 25-29, 2019



The unsuitability for incorporation of the delimitation data is on one hand based on non-compliance with the (later defined) data format. On the other hand it is considered non-compliant for lack of positional accuracy of the spatial attributes to the data. This means deformations may show when delimited and georeferenced boundaries will be related to other objects already in the national grid. These deficiencies can be resolved effectively by applying the desired format and involving survey experts in specific phases in the registration process. In this way, the expertise of civil society actors in sensitising rural communities can be used to unlock the cadastral intelligence that exists amongst members of (traditional) communities.

Collaborative mapping will be elaborated through a combination of top-down and bottom up approaches, involving multi actors and varied standardized methods, aiming at efficient and good quality outcome.

Kadaster, together with ATR/BPN, Civil Society actors, Academia and Private Sector Process Innovators jointly tested alternative approaches to involve local communities and civil society actors in land registration as a useful alternative to traditional ‘top-down’ approaches. The objective is to have full coverage of the land administration system taking precedence over sporadic in-depth surveys and registrations. This way the land administration content that is created will facilitate adequate land policymaking for instance policies required for implementing the Sustainable Development Goals (SDG’s) adopted by all members of the UN. Kadaster has calculated that parcel registration using participative methods would cost around 15 US\$ per parcel, and a full certification around 35 US\$ per parcel. This matches the estimations of ATR/BPN quite well. Total cost would be around 2 billion US\$. This can be brought down significantly by applying alternative approaches to the registration process in line with the Fit For Purpose guidelines and in compliance with the existing regulatory framework of Indonesia. Good land registration practices require careful registration of what parties involved agree on in terms of boundary and rights identification. It also requires provision of effective dispute resolving capacity. We expect that with improved and effective information and sensitisation, in combination with community-level ownership of the process, will significantly reduce the registration time and cost while ensuring high agreement and low dispute levels.



# Catalyzing Innovation

ANNUAL WORLD BANK CONFERENCE ON LAND AND POVERTY  
WASHINGTON DC, MARCH 25-29, 2019



Additionally, the process of identification of parcels and their boundaries will be organised in such a way that maximum use is made of modern, collaborative and participatory approaches. Here we will select appropriate methodologies that suit the specific local terrain conditions (weather, vegetation, soil), the available technical infrastructure (monumentation, reference stations, instruments, processing capacity) and the socio-cultural context (governance, traditions, attitudes, education levels). To validate these expectations for accelerated and reduced cost land registration, two pilot areas will be selected with various community attitudes towards land registration.

One challenging task to be solved is to transform government-facilitated and community-facilitated participatory mapping for land registration into an accepted product for land registration, combining visual boundaries and field marking for producing a set of agreed land boundaries.

The design of the process aims specifically at bringing together all partners by identifying their common interests and each partners' inherent strengths. The ultimate objective will be to provide all governmental actors with the consistent, reliable land information they require to execute their mandates, to Indonesia's private sector to support economic growth and to all civilians to build their livelihoods and secure their family capital in a sustainable inclusive and harmonious environment.

## **6. MOZAMBIQUE**

During the Portuguese colonial times Mozambique never had a decent land register for the lands used by the local population. The civil war after the independence in 1975 severely delayed the development of a suitable land registry. The Terra Segura program by the current government however aims at land rights for all in Mozambique. Kadaster is contributing to an implementation mechanism for the Land Sector Strategic Plan (Joachim et al, 2018).

Land administration in Mozambique needs to become less bureaucratic, simpler, cheaper and more transparent. Design and implementation of traditional approaches is so time consuming that land laws are to be adapted to provide for simpler procedures. Delivery of results (maps, DUATs, spatial plans) requires unconventional approaches, both conceptual and technological.



# Catalyzing Innovation

ANNUAL WORLD BANK CONFERENCE ON LAND AND POVERTY  
WASHINGTON DC, MARCH 25-29, 2019



A clear priority is identified: DUAT production for 5 million parcels before 2025 combined with an land administration organisation where maintenance can be performed. This allows for the future development and introduction of a more comprehensive land governance<sup>1</sup> in the related areas.

Sound policy and decision making with respect to the use and planning of land in Mozambique is based on a geographic knowledge of the national territory. Reliable geo-spatial information is essential for a well-functioning government, private sector and society in general. To achieve reliable geo-spatial information, topographic data should be that widely accessible at different scales, and integrated in one platform with cadastral data and land use data.

In this context, land administration is considered as a business that operates within legal frameworks. This business approach would imply cost recovery where possible and transparency in execution of the business. Topographic mapping and land use planning should be included in this business approach. However, additional budget may be needed in these areas – because cost recovery may be difficult to achieve here.

Implementation of the Land Sector Strategic Plan can be achieved by one unique, single and autonomous organisation for land administration and topographic mapping. This organization has to be developed. The National Directorate of Land (DINAT) (under the Ministry of Land, Environment and Rural Development) and the Provincial Geography and Cadastre Services (SPGC) are proposed to be brought under this organisation. Inclusion of the Land Registration (under the Ministry of Justice, Constitutional and Religious Affairs) into this organisation may be considered. It is advised to develop this autonomous organisation further with the National Centre for Cartography and Remote Sensing (CENACARTA) and the National Directorate of Land Planning and Resettlement (DINOTER). In this way, a nationwide Cadastre, Land Registry and Mapping Organisation (CRMO) appears.

The main objective of a CRMO is to provide services and customer satisfaction. In this way, a CRMO will be widely accepted amongst its users as the authority providing tenure security and as a partner in business providing land and spatial information from a national platform. The CRMO will be a user and demand driven organisation. A CRMO User Community will consist representatives of planners and developers of cities, experts in transportation and logistics,



# Catalyzing Innovation

ANNUAL WORLD BANK CONFERENCE ON LAND AND POVERTY  
WASHINGTON DC, MARCH 25-29, 2019



agricultural planners and monitoring experts, experts in statistics, mortgage providers, valuers and tax collectors.

For the production and for the future maintenance of 5 million DUATs (immediately followed by a programme for 10 million DUATs), resources and financing is needed. Financing based on a cost recovery approach is proposed – at least for land administration. This could be based on an annual ‘land administration’ or ‘cadastral’ fee for DUAT holders.

Land-administration organisations in Mozambique put much effort in determining, registering and disseminating information on the use of land and ownership of buildings. The large amount of data involved, is subject to many changes. This data needs to be kept up to date and must be accessible for retrieval. Consequently, operations can only be carried out efficiently and effectively with ICT support. However, the question raises on what is the appropriate approach to organisational objectives in relation to the opportunities offered by ICT. A strategic alignment between business and ICT is needed.

The approach for development of the core database in Mozambique is based on the land Administration Domain Model (ISO, 2012), see: (FIG, 2017).

In this implementation mechanism, the following key elements are considered for the reform of the land sector:

- Land cadaster
- Cartography, land use planning and resettlement
- Improvement of the land information management system (SIGIT)
- Institutional development, infrastructure and training
- The Legal Policy Framework



# Catalyzing Innovation

ANNUAL WORLD BANK CONFERENCE ON LAND AND POVERTY  
WASHINGTON DC, MARCH 25-29, 2019



## 7. DISCUSSION

We entered the phase of true implementations of Fit for Purpose (FFP) in several countries. The first results show the true value of the approach as guiding principal.

Some lessons learned:

- The Fit for Purpose approach is a knowledge based model. Only implementations can show its value and ‘development areas’. And acceptance by the authorities. NGOs may be involved – but cooperation with governmental authorities is key to success.
- The government should show its face in the field. This is a condition for implementation of participatory approaches and building trust between people and government.
- Bottom up approaches are in support to building trust.
- FFP is about a balance of the spatial, legal and institutional framework. This balance is the key to success, in all country implementations we did. Although the emphasizes vary, the balanced approach should be safeguarded in all given examples.
- In all country implementations FFP helped in setting the right mindset for action orientation by all stakeholders. The method unites in ambition as the purpose and a sense of urgency is set together.
- It’s all about people and the willingness to change. How to change, is not set in the FFP approach. This means that defining a country implementation is a stakeholder process with an undefined outcome. FFP is not a cook book.
- Stakeholder selection is a delicate process, as land is power and capital related. Good governance can therefore hardly be a result of FFP, but should be part of the process of defining the implementation.
- Technology helps tremendously. But is not the driver we can just wait for.
- Scalability is an issue in all countries. Transforming the results for a pilot area to the national level will develop all kind of new challenges in all three frameworks. The choice for an IT solution is closely related to this and will bring new stakeholders in the arena with different concerns and strategies.



# Catalyzing Innovation

ANNUAL WORLD BANK CONFERENCE ON LAND AND POVERTY  
WASHINGTON DC, MARCH 25-29, 2019



- The introduction of the Fit for Purpose Land Administration can be considered a new way of thinking in achieving faster, cheaper and more appropriate land administration systems for the world. In order to assure an easy and adaptable interoperability layer with other stakeholders, the Fit-For-Purpose Guiding Principles recommend the data model chosen for the Fit-For-Purpose Land Administration system should be based on (ISO 19152:2012) - Land Administration Domain Model (LADM) and the derived Social Tenure Domain Model (STDM).
- The establishment of land administration infrastructures is a catalyzer for institutional cooperation. This is (from our experience in Colombia, Nepal and Mozambique) be a better approach than reform of legal mandates.
- Full participatory approaches where the field work can be done by the “boys and girls from the village” in cooperation with the individual land owners or users are proven to be possible. This has a huge impact on costs and time of initial data acquisition. Apps and mobile technology can be used. The problem is that integrated data acquisition requires splitting of data to cadaster and land registry (often with different ids). This requires land implementation of administration infrastructure as mentioned.

There is still much more to be done. Mobilising leadership, international cooperation, innovation of methods and the adaptation of modern technologies are essential parts of the cadastral actions needed. But first of all the capacity should be built. We need professionals that understand and endorse Fit for Purpose Land Administration aiming at their contribution to the 2030 agenda for sustainable development.



# Catalyzing Innovation

ANNUAL WORLD BANK CONFERENCE ON LAND AND POVERTY  
WASHINGTON DC, MARCH 25-29, 2019



## REFERENCES

Baron, L., Mejia, F. and Jenni, L. (2018) Case Study of the Colombian ISO 19152 Profile. Proceedings 7th Land Administration Domain Workshop, Zagreb, Croatia, 11-13 April 2018. Editors: Christiaan Lemmen, Peter van Oosterom & Elfriede Fendel. ISBN 978-87-92853-69-1. International Federation of Surveyors FIG, Copenhagen

Enemark, S. and McLaren, R. (2017) fit-For-Purpose land Administration: developing country specific strategies for implementation. In: Responsible Land Governance: Towards and Evidence Based Approach, Washington, D.C. March 20-24, 2017 : Proceedings of the Annual World Bank Conference on Land and Poverty, Washington, D.C. The World Bank, 2017

Paula Dijkstra (Netherlands), *David Mitchell* (Australia), Bennett Rohan (Netherlands), Ganesh Prasad Bhatta and Raja Ram Chhatkuli (Nepal): Ignition for Fit For Purpose Land Administration in Nepal.

FIG (2017) Documentation of the 6th Land Administration Domain Workshop, Delft, The Netherlands. <https://wiki.tudelft.nl/bin/view/Research/ISO19152/LADM2017Workshop>

FIG/World Bank (2014) Fit-for-purpose land administration: Copenhagen, International Federation of Surveyors (FIG), 2014. FIG publication 60, ISBN 978-87-92853-11-0.

Government of Nepal (2018) Fit-For-Purpose land Administration. A Country level Implementation Strategy for Nepal

ISO (2012). ISO 19152:2012. Geographic information – Land Administration Domain Model (LADM). International Organization for Standardization (ISO). Geneva, Switzerland. <https://www.iso.org/standard/51206.html>

Joaquim, S., Carvalho, J. A., Marques, M. R., Carrilho, J., Balas, M., Lemmen, C. H. J., Unger, E-M. and Tomberg, M. (2018). Implementation Strategy for Land Administration in Mozambique. In: Land Governance in an Interconnected World. Annual World Bank Conference on Land and Poverty 2018 - The World Bank Building, Washington D.C., United States 19 - 23 March 2018. 44 p.

Jones, B., Lemmen, C.H.J. and Molendijk, M. (2017) Low Cost, Post Conflict Cadastre with Modern Technology. In: Responsible Land Governance: Towards and Evidence Based Approach, Washington, D.C. March 20-24, 2017 : Proceedings of the Annual World Bank Conference on Land and Poverty, Washington, D.C. : The World Bank, 2017. 16 p.



# Catalyzing Innovation

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WASHINGTON DC, MARCH 25-29, 2019



Molendijk, M., Santos Dukon, T., Lemmen, C. H. J., Morales Guarin, J. M., Endo, V., Restrepo Rodriguez, S., Gonzalez Dueñas, J. F., Matiz Sanchez, I. E., Spijkers, P., Unger, E. M. and Moreno Horta, I. A. (2018) Land and Peace in Colombia: FFP Methodology for Field Data Collection and Data Handling. In: Land Governance in an Interconnected World. Annual World Bank Conference on Land and Poverty 2018 - The World Bank Building, Washington D.C., United States 19 - 23 March 2018. 19 p.

Molendijk, M., Morales, J.M. and Lemmen, C.H.J. (2015) Light mobile collection tools for land administration: proof of concept from Colombia. In: GIM International, 29(2015)11 pp. 20-23.

UN/ECE, 1996. Land Administration Guidelines - With Special Reference to Countries in Transition. ECE/HBP/96. United Nations Economic Commission for Europe, New York and Geneva, 1996

UN Habitat/GLTN/Kadaster (2016) Fit-for-purpose land administration: guiding principles for country implementation: e-book. Nairobi, United Nations Human Settlements Programme (UN-HABITAT), 2016.

Unger, E.M., Zevenbergen, J.A., Bennett, R.M. and Lemmen, C.H.J. (2019) Application of LADM for disaster prone areas and communities. In: Land Use Policy 80(2019) pp 118-126

Van Den Berg, C., Valkman, S., Lukman, H., Saers, P., (2018) Finding Common Ground. In: Land Governance in an Interconnected World. Annual World Bank Conference on Land and Poverty 2018 - The World Bank Building, Washington D.C., United States 19 - 23 March 2018.



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