



**BOOSTING THE REGISTRATION OF LAND RIGHTS  
IN STEP WITH THE  
SUSTAINABLE DEVELOPMENT GOALS**

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## **ABSTRACT**

Registration of land rights (both formal and informal) is a starting point for different goals, as formulated by the United Nations in the so called Sustainable Development Goals (SDG's) for 2030. For example, registered land rights are essential to end poverty (goal 1) and have gender equality (goal 5).

In order to boost the recognition, registration and review of land rights globally, professionals and citizens have to be mobilized, internationally and at the national and local level. The professional partners in this process are governmental bodies at different levels, NGO's, scientific organisations and the private sector. Good cooperation between these partners is key to success.

Likewise the development of a Spatial Data Infrastructure (SDI), being successful in land registration demands for the development of hard components as well as soft components. The hard components are the data, standards, infrastructure and technology relevant to the administration of land rights and the management of land. The soft components are the institutions, processes, financing, organisation and leadership. Both hard and soft components need to be in place to achieve successful implementations at national and local level of land administration systems.

This paper identifies the international bodies that can take the lead in working on the institutional, legal and spatial frameworks that are needed for national implementations of the so called fit for purpose land administration. The possible role of World Bank, International Federation of Surveyors (FIG), Joint board of Geospatial Information Societies (JBGIS), Open Geospatial Consortium (OGC), the United Nations Initiative on Global Geospatial Information Management (UN-GGIM) and UN organisations like UN-Habitat and the Food and Agriculture Organisation (FAO), is taken as starting point in this paper. This way, soft components can be taken up to the international level. Also in national and local initiatives this is important. In general the management and implementation of soft components gets less attention than the hard components. In this paper examples are given of national and local initiatives and projects, that act as 'champions' in implementation projects.

The present needs and availability of the hard components are not the focus of this paper, but should not be ignored. As our environment is highly dynamic, an incremental approach should be envisaged, allowing for flexibility and sustainability at the long-term.

The present technology and data availability is enormous. Satellite imagery, GPS and a connected world through internet give opportunities that weren't thinkable just a few decades ago. Standards like the Land Administration Domain Model (LADM) allow for a jump start of new initiatives, connecting top-down and bottom-up initiatives to each other. But also the



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knowledge, tools and experience are in place. The Voluntary Guidelines on the Responsible Governance of Tenure of Land, Fisheries and Forests in the Context of National Food Security (VGGTs, FAO, 2012) and the recently published Guiding Principles on Fit For Purpose Land Administration (GLTN/UN-HABITAT/Kadaster, 2016) allow for well-designed systems with respect to the legal, spatial and institutional framework.

It is believed that with the present state of technology, knowledge, level of ambition and commitment as defined in the SDG's, the momentum is there to boost the registration of land rights worldwide. This registration will increase the opportunities for sustainable development and the avoidance of future conflicts. However, it requires joint activities focused on concrete results in land registration that match with the SDG's. Advocacy, leadership and financing need our full attention. It is up to large international organisations to take the lead in this.

**KEY WORDS:** Sustainable Development Goals (SDGs), land administration, land rights, Spatial Data Infrastructures (SDI), Land Administration Domain Model (LADM).



## 1. INTRODUCTION

Estimations show that about 70% of the people-land relationships are not documented. This, while population grows and the pressure on land and natural resources increases. Often, the poor suffer most through dispossession, disputes and distrust. This results in many land conflicts and competing claims on land. Appropriate administration of land is the start for conflict resolution and sustainable land use planning anywhere in the world. Appropriate administration of land normally marks the start of land related conflict resolution and subsequent sustainable land use planning and natural resource management. This is crucial for people's fundamental needs – including food security, housing and gender equality – and it is a human right (Lemmen et al., 2015).

Land administration is described as the process of determining, recording and disseminating information about the relationship between people and land (ISO, 2012). If ownership is understood as the mechanism through which rights to land are held, we can also speak about land tenure. A main characteristic of land tenure is that it reflects a social relationship regarding rights to land, which means that in a certain jurisdiction the relationship between people and land is recognised as a legally valid one. These recognised rights are in principle eligible for registration, with the purpose being to assign a certain legal meaning to the registered right (e.g. a title). Therefore, land administration systems are not just 'handling geographic information', as they represent a lawfully meaningful relationship amongst people, and between people and land – see for further details the ISO International Standard Land Administration Domain Model LADM and its specialization the Social Tenure Domain Model STDM (ISO, 2012; FIG/GLTN, 2010).

Securing land rights for the world is a challenging but feasible objective. Methods and land tools do exist and develop rapidly, supported by excellent private companies, modern technology and new information and communication possibilities. Land administration is a process of continuous upgrading to higher levels of detail, quality and usability. By adding capacity building to the game, implementation and true action can be generated (Zeeuw, De and Lemmen, 2015).

In order to boost the recognition, registration and review of land rights globally, professionals and citizens have to be mobilized, internationally and on the national and local level. The professional partners in this process are governmental bodies at different levels, Non-Governmental Organisations (NGOs), scientific organisations and the private sector. Good cooperation between these partners is key to success.

The Sustainable development Goals (SDGs) as defined by the UN (<https://sustainabledevelopment.un.org/>) offer the framework to define, monitor and evaluate progress in land administration development. Likewise, the experience with developing Spatial



Data Infrastructures can be of value to professionals in the domain of land administration. In this paper, this framework is used to express the state of play in land administration systems with the objective to have land rights for all by the year 2030.

## 2. LAND ADMINISTRATION IN RELATION TO THE SDG'S

An analysis has been made to which of the 17 goals land administration contributes in realising this goals. Figure 1 makes reference to the 11 articles that have been identified to which land administration will contribute positively.



**Figure 1.** Eleven of the seventeen Sustainable development goals are identified to be positively supported by good functioning land administration. Reference to the most relevant articles of the sustainable development goals is given.

In order to be more effective and to have more focus in activities, the Cadastre, Land Registry and Mapping Agency of the Netherlands (Kadaster) has identified four priority goals where our professional contributions are believed to be most impactful. Figure 2 shows the articles within the goals ‘End poverty’ (1), ‘No hunger’ (2), ‘Gender equality’ (5) and ‘Sustainable cities and communities’ (11) that will be impacted by good land administration.



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### **End poverty**

**1.4** By 2030, ensure that all men and women, in particular the poor and the vulnerable, have equal rights to economic resources, as well as access to basic services, ownership and control over land and other forms of property, inheritance, natural resources, appropriate new technology and financial services, including microfinance

**1.a** Ensure significant mobilization of resources from a variety of sources, including through enhanced development cooperation, in order to provide adequate and predictable means for developing countries, in particular least developed countries, to implement programmes and policies to end poverty in all its dimensions

**1.b** Create sound policy frameworks at the national, regional and international levels, based on pro-poor and gender-sensitive development strategies, to support accelerated investment in poverty eradication actions

### **No hunger**

**2.3** By 2030, double the agricultural productivity and incomes of small-scale food producers, in particular women, indigenous peoples, family farmers, pastoralists and fishers, including through secure and equal access to land, other productive resources and inputs, knowledge, financial services, markets and opportunities for value addition and non-farm employment

**2.4** By 2030, ensure sustainable food production systems and implement resilient agricultural practices that increase productivity and production, that help maintain ecosystems, that strengthen capacity for adaptation to climate change, extreme weather, drought, flooding and other disasters and that progressively improve land and soil quality

### **Gender equality**

**5.a** Undertake reforms to give women equal rights to economic resources, as well as access to ownership and control over land and other forms of property, financial services, inheritance and natural resources, in accordance with national laws

**5.5** Ensure women's full and effective participation and equal opportunities for leadership at all levels of decision-making in political, economic and public life

**5.c** Adopt and strengthen sound policies and enforceable legislation for the promotion of gender equality and the empowerment of all women and girls at all levels

### **Sustainable cities and communities**

**11.1** By 2030, ensure access for all to adequate, safe and affordable housing and basic services and upgrade slums

**11.3** By 2030, enhance inclusive and sustainable urbanization and capacity for participatory, integrated and sustainable human settlement planning and management in all countries

**11.a** Support positive economic, social and environmental links between urban, peri-urban and rural areas by strengthening national and regional development planning

**11.b** By 2020, substantially increase the number of cities and human settlements adopting and implementing integrated policies and plans towards inclusion, resource efficiency, mitigation and adaptation to climate change, resilience to disasters, and develop and implement, in line with the Sendai Framework for Disaster Risk Reduction 2015-2030, holistic disaster risk management at all levels

**11.c** Support least developed countries, including through financial and technical assistance, in building sustainable and resilient buildings utilizing local materials.

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*Figure 2. Priority goals identified by the Cadastre, Land Registry and Mapping Agency of the Netherlands (Kadaster) with reference to relevant articles.*



It should be stressed that the Sustainable Development Goals impact activities in both developed and developing countries. For example the goals 'No hunger' needs the attention from all countries in the world and is not a sole responsibility for developing countries. All goals also have a global impact and a national impact. In the Netherlands the Central Bureau of Statistics analysed the national progress on the SDG's. The state of play end 2016 was evaluated positive for the goals 3, 6, 8 and 17, while improvement has to be made on the goals 4, 5, 7 and 13 (see figure 1 for goal numbers). This shows that also developed countries can steer and point their policies, using the SDG's as a reference framework.

### **3. HARD AND SOFT COMPONENTS TO BE DEVELOPED**

Likewise the development of a Spatial Data Infrastructure (SDI), being successful in land registration demands for the development of hard components as well as soft components. The hard components are the data, standards, infrastructure and technology relevant to the administration of land rights and the management of land. The soft components are the institutions, processes, financing, organisation and leadership. Both hard and soft components need to be in place to achieve successful implementations at national and local level of land administration systems.

SDIs are developed for decision support in solving spatial problems and managing spatial processes. Land administration is considered one of the spatial processes that can be developed, monitored and planned with the aid of spatial analysis. According to Longley et al. (2005) spatial analysis is a set of methods of which results change when the locations of the objects being analysed, change.

For the purpose of good governance and corporate social responsibility, governments and companies need to have access to state of the art tools, products and services. In modern systems, geospatial information plays an important role, provided through Spatial Data Infrastructures (SDI).

The theory of SDI development and monitoring (e.g. Cromptoets, 2006) can be used as an example for land administration system development. At the one hand the rules of SDI development apply to Land Administration as well, on the other hand in most cases land administration is part of a national SDI and should be considered an integrated part of the SDI (Zeeuw, De, 2013).



#### **4. ACTION IS THERE: SOFT COMPONENTS**

In order to boost land administration development, very often the highest priority is given to hard components. Organisations start planning hardware, data collection & management and the building of IT and infrastructure. Still, soft components are in general the more difficult aspects of setting it up. People seem harder to be managed than technology. The organisation, institutional building, leadership and financing in general take a longer than technological investment and design.

It is believed that land rights for all can be achieved linked to the SDG's in 2030. Good examples of initiatives exist worldwide at global and national level. Of course current modern technology and even technology of tomorrow is needed to achieve this, but simultaneously international and national organisations need to act. And they do.

##### **4.1. Global initiatives**

International bodies take the lead in working on the institutional, legal and spatial frameworks that are needed for national implementations of the so called fit for purpose land administration. The possible role of World Bank, International Federation of Surveyors (FIG), Joint board of Geospatial Information Societies (JBGIS), Open Geospatial Consortium (OGC), the United Nations Initiative on Global Geospatial Information Management (UN-GGIM) and UN organisations like UN-Habitat and the Food and Agriculture Organisation (FAO),, is taken as starting point in this paper. But other initiatives of public and private exist and are equally important. Private sector involvement, community based initiatives and the need for leadership have been identified before (ref, 2015), with emphasis on the Voluntary Guidelines on the Responsible Governance of Tenure of Land, Fisheries and Forests in the Context of National Food Security (VGGTs, FAO, 2012), Global Land Tool Network (GLTN), World bank indicators and monitoring systems as the Land Governance Assessment Framework (LGAF) and next generation approaches like the Young Surveyors network (YSN). In this paper, three recent results of 2016 are described, to underline the importance of global cooperation and coordination:

- UN GGIM, and the Addis Ababa declaration on land administration
- OGC - Domain Working Group on Land Administration
- FIG contributions, broadening the scope to land consolidation and women rights



#### **4.1.1. UN GGIM - Addis Ababa Declaration on Land Administration**

The contents of a comprehensive declaration of UN GGIM was agreed on in the closing session of the High Level Expert Meeting of UN GGIM in Ethiopia in 2016. A key issue is the support to the development of Fit-For-Purpose Land Administration and geospatial information, particularly in developing countries. This information should be authoritative and consistently available. Land Administration concerns both formal and informal people to land relationships. Political awareness has to be advocated and increased (Zeeuw, de, *et al.*, 2016). Progress needs to be measured. Standards need to be used – LADM is recognised here. Statistical and geospatial data need to be further integrated.

See for the full contents of the declaration:

<http://ggim.un.org/docs/meetings/4th%20HLF/Addis%20Declaration%20Final%2022Apr2016.pdf>

#### **4.1.2. Open Geospatial Consortium - OGC**

In 2016 OGC and its members showed leadership and commitment by stating up an Domain Working Group (DWG) on Land administration. This DWG will focus on:

- The examination of existing systems of land administration;
- Preparation of best practices that enable nations to address their needs in less time, cost, and effort through standards-based implementations; and
- Dialog on the integration of emerging information resources and/or technologies to assist nations in leapfrogging capability.

The full charter of the DWG can be found at

[https://portal.opengeospatial.org/files/?artifact\\_id=70210](https://portal.opengeospatial.org/files/?artifact_id=70210).

A white paper is under development.

#### **4.1.3. The international federation of Surveyors - FIG**

FIG has a long history in the domain of Land Administration and professional contributions. Commission 7 of FIG promotes a broad range of expert development from the use of a cadastral template, to modern technology and innovation to pro poor system development. As the profession evolves fast, FIG is active in many fields simultaneously. Apart from its contribution to Fit for Purpose Land Administration (FIG?WB, 2014), UN GGIM and the development of



professional standards, two examples are given of initiatives that have been supported recently by FIG in 2016: Land consolidation in relation to land administration and women's rights to land.

### *Land consolidation*

Land consolidation and land readjustment is basically about improving the structure of people to land relationships for one or more purposes. This is usually associated with broad economic and social reforms. As an implementation tool for spatial planning this can be combined with the development of infrastructure, public services and water management. The principles of both tools are basically the same: pooling of all the land parcels in a particular area and planning them as a unit and then dividing up the land again to the original land owner or user. A proportion of the land can be used for public purposes such as infrastructure, nature and public space.

Land consolidation principles may be very well applicable in post conflict areas where land redistribution and land development need to be combined.

Experts presented their research and project results during parallel sessions of a symposium, co-organised in 2016 by FIG/FAO/LandNet/GLTN in Apeldoorn, The Netherlands. The global perspective contributed to a collection of examples of how land consolidation and readjustment can contribute to the Sustainable Development Goals of the UN. See also:

[http://fig.net/news/news\\_2016/2016\\_11\\_land\\_consolidation/2016\\_11\\_Apeldoorn\\_Declaration.pdf](http://fig.net/news/news_2016/2016_11_land_consolidation/2016_11_Apeldoorn_Declaration.pdf)

### *Womens rights*

The rationale behind this initiative was that the potential for scaling up efforts to secure women's land rights is not being fully exploited despite the fact that several global efforts to secure women's land rights have been made by a wide range of development actors over the last decades. With support of the Dutch government, FIG provided it's professional input to this workshop with the objective: to identify the most promising experiences, ideas, and strategies to enhance and strengthen women's land rights and to develop road maps reflecting the participants' visions and proposed actions on the best ways to enhance and strengthen women's land rights, including which actors to involve, and participants' commitment to taking identified actions further.

A report and final declaration of the session can be found at:

[http://fig.net/news/news\\_2016/2016\\_11\\_women/Declaration\\_WLRI.pdf](http://fig.net/news/news_2016/2016_11_women/Declaration_WLRI.pdf)



#### **4.1.4. GLTN – Guiding principles on Fit for Purpose Land Administration**

The Global Land Tool Network (GLTN) is a driving force behind the tool development for pro-poor land administration development. Among many other activities, GLTN published in 2016 in cooperation with Kadaster Guiding Principles for Fit for Purpose Land Administration (GLTN/UN-HABITAT/Kadaster, 2016). With this guiding principles country implementations and the sharing of knowledge is brought a clear step further.

#### **4.2. National governments act: Example from the Netherlands**

##### *A national dialogue*

The Multi Stakeholder Dialogue on Land Governance (MSD-LG) is an initiative of the Dutch Ministry of Foreign Affairs. Participants to the dialogue endorse to invest time and energy in making an effective contribution from the Netherlands to improve land governance worldwide. The stakeholders explicitly promote practical implementation and monitoring of improvement measures by Dutch business, government, research institutions and NGOs in a manner that is in line with the principles adopted in the VGGT.

Dutch private sector and investments companies are urged to handle according to the principles of Free Prior Informed Consent (FPIC). FPIC has emerged as an international human rights standard that is derived from the collective rights of indigenous peoples to self-determination and to their lands, territories and other properties. It should be considered as a collective right of indigenous peoples to make decisions through their own freely chosen representatives and customary or other institutions and to give or withhold their consent prior to the approval by government, industry or other outside party of any project that may affect the lands, territories and resources that they customarily own, occupy or otherwise use (FAO, 2014).

The elements of FPIC are:

- Free: Consent has to be obtained without coercion, intimidation or deception (no bribery).
- Prior: Consent should be obtained sufficiently in advance of the project.
- Informed: Indigenous communities should be properly informed about the kind of project, its scope, time frame, geographic coverage, and the results of the performed impact assessments.
- Consent: There has to be actual consent from the community involved. Relevant issues are, for example, the participation of vulnerable groups in the community, and whether communities can participate through their own chosen representatives and customary methods.



*Land administration projects supported by The Netherlands*

The Dutch government strongly cooperates with Kadaster in land administration projects. Examples of projects supported in 2016 are:

- ***LAND partnership, ignition of country implementations.*** The Dutch ministry of Foreign Affairs and the Cadastre, Land Registry and Mapping Agency (Kadaster) started a partnership in 2015, called Land Administration for National Development (LAND). The objective of the programme is to ignite and initiate Fit for Purpose Land Administration initiatives worldwide. In eight countries ignition took place.
- ***Macedonia, ‘lifting land administration to a next level’.*** Since 2006, Kadaster maintains intensive relations with the Agency for Real Estate and Cadastre (AREC) in Macedonia. AREC transitioned to a modern organisation, introducing IT for automating processes and digitising documents and cadastral maps. In the past years, Kadaster’s support focused on digital map production and IT development. One of the achievements was a feasibility plan for the finalisation of the digital map, which formed a basis for a new World Bank loan
- ***Colombia, ‘making progress in an intuitional difficult environment, driven by the peace process’.*** Land administration in Colombia is shifting from a fiscal cadastre towards a decentralised multipurpose cadastre. A new policy document has been approved, that describes the road map to implement such a multipurpose cadastre for the urban and rural areas of Colombia (CONPES 3859, approved by the government on 13/6/2016). With the crucial support of the Dutch embassy in Bogotá, a High Level Debate with all Colombian stakeholders (such as Cadastre, Registry, Ministry of Agriculture) was organised in March 2015 on new concepts in land administration. A profound discussion took place after the presentation of Kadaster, in which for example Kadaster put forward the use of an ISO standard model for land administration information (the so-called LADM model). The model is needed to structure decentralised collected data and allows for data exchange between other municipalities, central governmental institutions and private parties. The model allows the recordation of all forms of tenure, which is a complete breaking point since previously only formal titles were taken into account. This much debated model is now an integral part of the CONPES.
- ***Bhutan, ‘Information management for good governance’.*** This project focused on improving governance and cooperation between the major service providers in spatial data in Bhutan. The stakeholders involved were the National Land Commission (NLC) of Bhutan, the municipality of Thimphu and the Ministry of Works and Human Settlements. Together they cooperate within the Centre of GIS Coordination. The Dutch project team supported them in the process from the development of an executive plan for the implementation of the spatial data policy. The specific project purpose was to enhance access to reliable geo-information for major stakeholders in Bhutan. The approach for this project was Learning



through Exchange (LE). By exchanging knowledge between the Netherlands and Bhutan in the field of Geo-Information we aimed to develop human and organisational capacity so that the activities can be harmonised and standardised for the efficient maintenance and timely delivery and use of Geo-information for sustainable (socioeconomic) development of the country.

- **Mozambique, ‘Land administration systems for sustainable development’.** The National Directorate of Land (DINAT) in Mozambique and Kadaster have combined forces in a strategic association. The aim is to strengthen the Systematic Land Regularisation programme in joint collaboration with the Ministry of Lands and the Dutch embassy. The ultimate goal is the Issuing of five million certificates before the end of 2020. Currently, DINAT and Kadaster are outlining a pilot project, with the objective to issue 150,000 customary land right certificates before the end of 2016. In collaboration with DINAT staff members, we developed a Land Administration Plan. This is based on a Fit-For-Purpose approach to collect field data. The design of the data capturing process suits the purposes of the Mozambique Safe Land Programme: both modern but simple technology and participative methods are used. During the project, we will analyse and optimise existing, established processes and associated datasets. In the next months a service provider will be selected to implement the new processes and systems. In December 2016 the first results should be visible.

The results of these, and other projects, have been disseminated through various channels, such as trade journals and magazines (GIM International), scientific journals, country specific conferences etc.

## **5. TECHNOLOGY DRIVEN DEVELOPMENT: HARD COMPONENTS**

The present technology and data availability is enormous. Satellite imagery, GPS and a connected world through internet give opportunities that weren't thinkable just a few decades ago. Standards like the Land Administration Domain Model (LADM) allow for a jump start of new initiatives, connecting top-down and bottom-up initiatives to each other. But also the knowledge, tools and experience are in place. The Voluntary Guidelines (VGGT) and the recently published Guiding Principles on Fit For Purpose Land Administration allow for well-designed systems with respect to the legal, spatial and institutional framework.

As our environment is highly dynamic, an incremental approach should be envisaged, allowing for flexibility and sustainability at the long-term. This means that systems should be built in such a way that incremental development is possible.



Aspects that need attention in land administration development are:

- Data, imagery, knowledge & experience
- Standards (ISO, OGC, GLTN: LADM/STDM)
- Methods & guidelines (Fit for Purpose LA, VGGT, New Urban Agenda, SDGs)
- Tools (UN, Open Source, commercial)
- Infrastructure (Governments, communities)
- Cases and best practices
- Indicators, targets, global insight (LGAF, LII)
- Partnership, awareness, leadership & finance

Although focus in this paper is not on the technology it should be stated that innovation and development is prerequisite for achievement of the SDG's. With the technology of today land administration can be boosted, but not enough. It is the technology and approaches of tomorrow that will bring the true boost in development.

## **6. CONCLUSIONS**

In order to achieve the SDG's and to have legal certainty for all citizens in the world, good geospatial information management and sound land administration are important prerequisites.

It is believed that with the present state of technology, knowledge, level of ambition and commitment as defined in the SDG's, the momentum is there to boost the registration of land rights worldwide. This registration will increase the opportunities for sustainable development and the avoidance of future conflicts. However, it requires joint activities focused on concrete results in land registration that match with the SDG's. Advocacy, leadership and financing need our full attention. It is up to large international organisations to take the lead in this.

In order to boost land rights for the world both soft and hard components should be developed. Apart from the examples of global and national initiatives as used in this paper, much more effort is needed by the public and private sector, NGO's and communities.

The momentum is right for the challenging but feasible ambition to have land rights for the world.



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