Building Fit-For-Purpose Land Administration Systems: Providing Security of Tenure for All

Christiaan LEMMEN, The Netherlands,
Stig ENEMARK, Denmark, Robin MCLAREN, United Kingdom

SUMMARY

New solutions in land administration are required that can deliver security of tenure for all, are affordable and can be quickly developed and incrementally improved over time. The Fit-For-Purpose (FFP) approach to land administration has emerged to meet these simple, but challenging requirements.

This paper discusses the building of the FFP approach at country level. Implementation is strongly related to the recognition of the continuum of land rights. Implementation of the FFP approach means to recognise, record and review land rights:
− 'Recognise' involves a procedure for recognition, classification and development of a typology in land rights on the basis of an assessment of existing legitimate rights at the country level. The result of this process can be published in a National Tenure Atlas.
− 'Record' means collecting data on evidence of land rights based on FFP approaches in land administration following the FFP principles for building the spatial framework. The Social Tenure Domain Model (STDM) is recommended.
− 'Review (Conversion)' means assessing the evidence of rights and any possible out-standing claims and when conditions are met, the security of the rights will be increased.

A complete overview is required of the tenure systems and land rights related to the areas affected. All formal and informal tenure categories and sub-categories should be identified and related to space. It is recommended that a National Tenure Atlas will be developed in order to get overview of the spatial distribution of legitimate tenure types across a country.

The STDM allows modelling and managing the complex social tenure relationships between people and land found within legitimate rights. STDM provides a standard for representing the recorded people to land relationships independent of the level of formality, legality and technical accuracy. Such flexibility also relates to the recordation that should be organised at various levels rather than through one central register. The land administration system can then be upgraded and incrementally improved over time in response to social and legal needs and merging economic opportunities. Gender equity should applied and should be seen first and foremost as a universal human right, independently of any other argument in favour for it. This should allow for security of tenure within various kinds of communities and thereby enabling secure land rights for all.

Building Fit-For-Purpose Land Administration Systems: Providing Security of Tenure for All (8392)
Christiaan Lemmen (Netherlands), Stig Enemark (Denmark) and Robin McLaren (United Kingdom)

FIG Working Week 2016
Recovery from Disaster
Christchurch, New Zealand, May 2–6, 2016

Adopting an effective, scalable supporting ICT infrastructure is considered to be crucial for the implementation of the FFP approach.

Building Fit-For-Purpose Land Administration Systems:
Providing Security of Tenure for All

Christiaan LEMMEN, The Netherlands,
Stig ENEMARK, Denmark, Robin MCLAREN, United Kingdom

1. INTRODUCTION

New solutions in land administration are required that can deliver security of tenure for all, are affordable and can be quickly developed and incrementally improved over time. The Fit-For-Purpose (FFP) approach to land administration has emerged to meet these simple, but challenging requirements. This FFP approach has been recognized and supported by FIG and the World Bank and is described in a joint FIG and World Bank publication (FIG/WB, 2014). UN-HABITAT/Global Land Tool Network (GLTN) decided to elaborate this approach further by initiating a project in cooperation with Dutch Kadaster on developing a Guide for Fit-For-Purpose Land Administration in collaboration with key partners. This guide (Enemark et al., 2015) underpins the GLTN land tool development activities and enables implementation of sustainable land administration systems in less developed countries at scale. The resulting GLTN publication will be launched at the FIG Working Week, Christchurch, New Zealand, May 2016.

Enemark et al. (2016) describe the key principles for building sustainable and FFP land administration systems. The FFP approach has three fundamental characteristics. Firstly, there is a focus on the purpose and then how to design the means for achieving it as well as possible; secondly, it requires flexibility in designing the means to meet the current constraints; and, thirdly, it emphasizes the perspective of incremental improvement to provide continuity. Enemark et al. further describe the three core components of the FFP concept: the spatial, the legal, and the institutional frameworks. Each of these components includes the relevant flexibility to meet the actual needs of today and can be incrementally improved over time in response to societal needs and available financial resources. McLaren et al. (2016) describe the approaches and issues associated with implementing FFP land administration, including change management, capacity development and project delivery.

This paper discusses the building of the FFP approach at country level. The paper provides some guidelines on "how to make it work". In the view of the authors the focus of implementation is in providing secure land rights for all. Implementation of the FFP approach means to 'recognise', 'record' and 'review' land rights.

This paper further highlights the importance of the development of an ICT environment.

The paper starts with the introduction of some characteristics of current legal and regulatory frame works in section 2. This includes the continuum of land rights. Land administration

Building Fit-For-Purpose Land Administration Systems: Providing Security of Tenure for All (8392)
Christiaan Lemmen (Netherlands), Stig Enemark (Denmark) and Robin McLaren (United Kingdom)

FIG Working Week 2016
Recovery from Disaster
Christchurch, New Zealand, May 2–6, 2016

functions are presented in section 3; the FFP process for recognizing, recording and reviewing in section 4. STDM is briefly presented in section 5; the National Tenure Atlas in section 6 and flexible recordation is highlighted in section 7. ICT principles relevant for nationwide FFP implementation are introduced in section 8. The paper ends with conclusions in section 9.

2.   CHARACTERISTICS OF LEGAL & REGULATORY FRAMEWORKS

The legal and regulatory framework defines how rights, restrictions and responsibilities in land are established and managed, taking into account the actual (de jure and de facto) land tenure arrangements within the country. By adopting a FFP approach to building this framework, it should include the following: types of land (such as public, private, customary, etc.); types of tenure recognised (such as formal, legitimate, informal, social); procedures for recognition and recordation of the various forms of land rights; procedures for land transfers through sales, inheritance, divorce, marriage, etc.; and procedures for maintenance and updating.

In most developing countries 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 courts. The existing legal framework is therefore often a significant barrier for implementing a flexible approach to building land administration systems (FIG/WB, 2014). The legal and regulatory framework will normally include a comprehensive land law or real property law as well as legislation that govern the conduct of land registration, such as the regulations that control the operation of the land registry and cadastral management. In the majority of developing countries around 80 per cent of the land is held under some form of customary tenure (Enemark et al., 2016). This land is managed by traditional authorities and is generally outside the jurisdiction of formal land registration institutions. As a first step, the legitimate holding of land in customary areas of the country should be recognised in the formal system with the option of subsequently being recorded and eventually upgraded to a legal status. This process should be managed through co-management between the traditional authorities and the formal governmental institutions, wherever possible.

Effective administration requires a flexible legal and regulatory framework supporting an adaptable tenure system with a compliant land recordation system. Conventional land administration systems in developing countries are technically unable to go to scale and the systems ignore types of social tenure common among their populations. Customary and communal areas have a long history of tenure security and well protected land rights for community members. Today this tenure is not providing sufficient security as demand for land in general and also for communal land has surged in response to increased investments. Land grabbing by private interests and expropriation without adequate compensation have been widely reported (Deininger et al., 2011). Scaling up policies and investments in the registration of customary and communal lands helps to protect the rights of local communities while reducing investment risks. Informal settlement residents need to be brought into the formal system.

Building Fit-For-Purpose Land Administration Systems: Providing Security of Tenure for All (8392)
Christiaan Lemmen (Netherlands), Stig Enemark (Denmark) and Robin McLaren (United Kingdom)

FIG Working Week 2016
Recovery from Disaster
Christchurch, New Zealand, May 2–6, 2016

While many tenure rights are defined in formal law, there are often other rights that are not similarly defined, but yet people use them every day because they are recognised by the local community and others. These rights have a social legitimacy even if they lack legal recognition, for example, customary rights that have not yet been given legal recognition by the state (UN-FAO, 2015). And the 'Voluntary Guidelines on the Responsible Governance of Tenure of Land, Fisheries and Forests in the Context of Food Security' (VGGTs) (UN-FAO, 2012) state: "Based on an examination of tenure rights in line with national law, states should provide legal recognition for legitimate tenure rights not currently protected by law." Many legal systems in developing countries just focus on specific types of rights, for example, (private) ownership or a strong land use right like leasehold. This is an impact of colonial history and legislation where land administration served mainly the elite. Global land policy and national trends now focus on recognition and protection of social, customary and more informal land tenures.
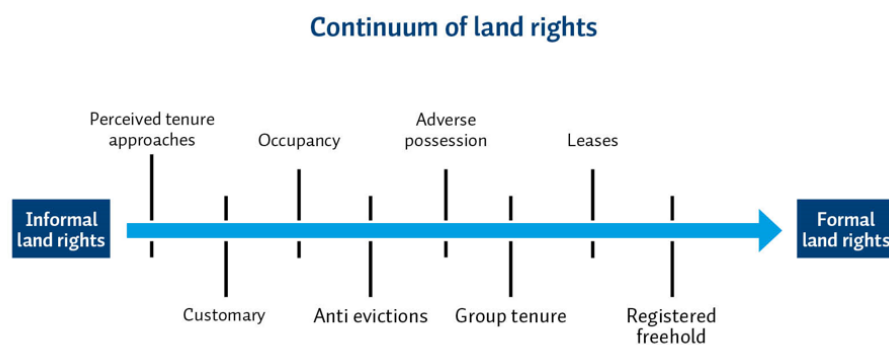

Figure 1: The Continuum of land rights (UN-HABITAT/GLTN, 2008).

The continuum of land rights (Figure 1) refers to the diversity of tenure arrangements in practice, encompassing both de facto (in fact) and de jure (in law) rights. While the rights in this range may not all enjoy the benefits of a country´s formal administrative or legal recognition, social recognition might be high, providing the de facto rights local legitimacy. A continuum of land rights can function when a land administration system includes information that caters for the whole spectrum of formal, informal and customary rights. The continuum of land rights does not imply that all societies will or should necessarily develop into tenure systems based on individual ownership (freehold). Importantly, the continuum of land rights indicates, that each step in the process can be formalised.

3. LAND ADMINISTRATION FUNCTIONS

A country´s full legal and regulatory framework should cover all the land administration functions of land tenure, land value, land use and development.

Land tenure includes three key aspects to be supported by the legal and regulatory framework namely to recognise, record and review land rights (see also Figure 2):

Building Fit-For-Purpose Land Administration Systems: Providing Security of Tenure for All (8392)
Christiaan Lemmen (Netherlands), Stig Enemark (Denmark) and Robin McLaren (United Kingdom)

FIG Working Week 2016
Recovery from Disaster
Christchurch, New Zealand, May 2–6, 2016

- 'Recognise' involves a procedure for recognition, classification and development of a typology in land rights on the basis of an assessment of existing legitimate rights at the country level. The result of this process can be published in a National Tenure Atlas.
- 'Record' means collecting data on evidence of land rights based on FFP approaches in land administration following the principles for building the spatial framework as presented in Enemark, et. al (2016).
- 'Review (Conversion)' means assessing the evidence of rights and any possible outstanding claims and when conditions are met, the security of the rights will be increased.

Land value is about the processes for valuation and taxation of land and properties. The systems for valuation and taxation vary throughout the world. In developed countries the value normally refers to the price most likely to be concluded by well-informed buyers and sellers of a property when it is available for purchase (UN-ECE, 2005). This means that value is not a fact, but an estimate of the likely price to be paid for land and property at a given time, and it depends on the type of market transaction and the motives and interests of the parties involved. The estimated values can then be used for taxation as a basis for financing of public services. Introduction of effective valuation and taxation systems requires sufficient and reliable land information – it requires a spatial framework to operate.

Land use planning ('Physical planning') is the process whereby changes in the environment can be brought through formal processes of allocating resources, particularly land, in order to achieve maximum efficiency while respecting the nature of the environment and the welfare of community (UN-ECE, 1996). This process operates under a legal and institutional framework and follows defined steps, such as: reviewing and understanding the existing environment; defining the problem that needs to be solved; determining alternative courses of action; evaluating the options for change; selecting an appropriate strategy after consultation with those affected; and implementing that strategy and monitoring its consequences. This implies that rights can be upgraded (converted) after review. Information is needed about land resources, infrastructure, population, and land rights, such as legal and traditional ownership; use rights for land, trees, grazing, forests, national parks, etc.

Land development usually implies land acquisition that can be organised in different ways. A private development entity may acquire land in the land market and making application to develop this land to appropriate authorities. Also, the government can behave as a private buyer or pre-emptive rights can be applied. Expropriation is also an option, but only under fair compensation. Land readjustment is a good alternative, possibly combined with land banking providing it is participatory, includes tenants and an appropriate financial model which relies on value sharing not just value capture. Enforcement during maintenance can be based on zoning and orders. Control options can be based on building and construction permits, land use regulations permits, environmental permits, subsidy policies and fiscal measures. The land administration system provides: information to citizens on the legal status of land, including public orders; basic data for monitoring, control and enforcement procedures; and information in the process of public acquisition of land, ultimately for expropriation purposes.

Building Fit-For-Purpose Land Administration Systems: Providing Security of Tenure for All (8392)
Christiaan Lemmen (Netherlands), Stig Enemark (Denmark) and Robin McLaren (United Kingdom)

FIG Working Week 2016
Recovery from Disaster
Christchurch, New Zealand, May 2–6, 2016

In most countries the processes of securing land rights are organised in a distributed or decentralised environment. In many cases the processes are judicial in nature and significant court time is involved. This has the impact of making the recording and registering of rights slow, non-transparent, cumbersome and expensive. This is a non-inclusive process and does not normally deliver adequate results as performance is low and security of tenure for all cannot be achieved. The FFP land administration approach recommends that the activities of recording and registering rights should be conducted by administrative institutions under delegated authority, wherever possible. This will allow the amount of court time involved in recording and registering rights to be minimised, freeing up court time to focus on resolving land disputes.

4. RECOGNISING, RECORDING AND REVIEWING LAND RIGHTS

The processes of recording and registering land rights under the FFP approach is illustrated in Figure 2 and the predominantly administrative activities are described below:
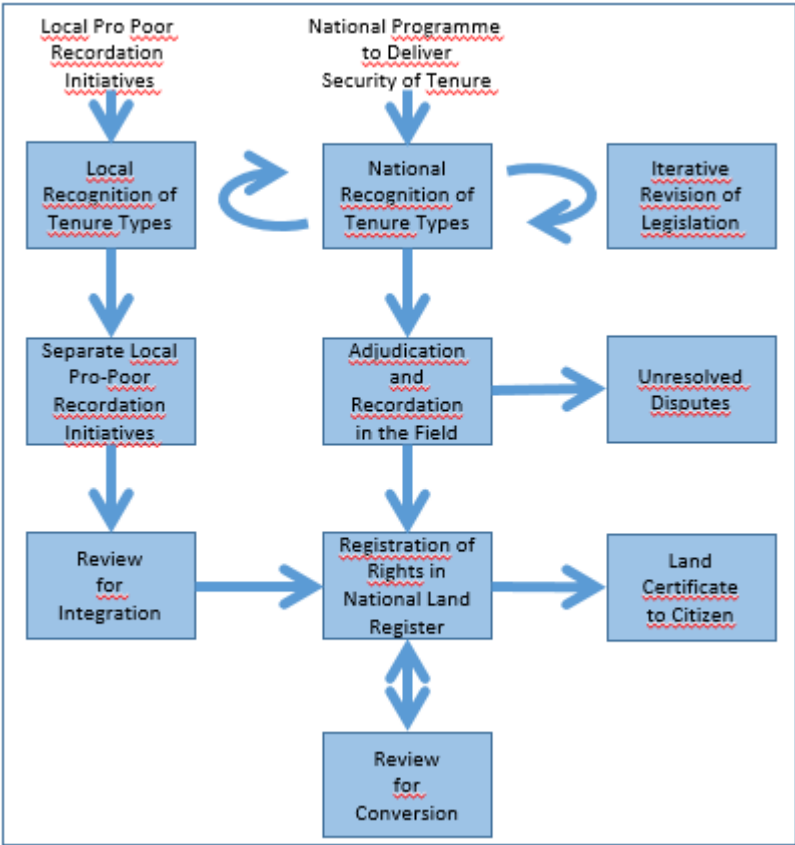

Figure 2: FFP Process for Recognising, Recording and Reviewing Land Rights

The FFP approach to land administration is primarily aimed at implementing national programs at scale to deliver security of tenure for all – as described in section 5.1. It is a pro-poor approach that recognises and legalises all legitimate rights. This requires political

Building Fit-For-Purpose Land Administration Systems: Providing Security of Tenure for All (8392)
Christiaan Lemmen (Netherlands), Stig Enemark (Denmark) and Robin McLaren (United Kingdom)

FIG Working Week 2016
Recovery from Disaster
Christchurch, New Zealand, May 2–6, 2016

commitment, as witnessed in Rwanda, Ethiopia and other countries, to roll out these national programs in short timeframes and at affordable costs. However, in countries where this political commitment is lacking then support may well build incrementally through the influence of local pro-poor recordation initiatives, which recognise and record legitimate rights in communities. These local initiatives may gain sufficient momentum and acknowledgement to eventually trigger wider incremental change and eventually lead to national recognition with corresponding changes to the legal and regulatory framework. The local pro-poor recordation initiatives can therefore work in parallel and be a supportive component of the national recordation process or act as a driver for change to help countries adopt the FFP land administration approach. This approach is described in section 5.2.

4.1 National Programme to Deliver Securtity of Tenure

National Recognition of Tenure Types. Tenure rights are the means by which people are able to use and enjoy land, fisheries, forests and other natural resources. Societies have developed rules of tenure that regulate these rights, such as to which resources, and on how the rights are allocated, to whom and under what conditions (UN-FAO, 2015).

A wide range of people, organisations and governments can hold tenure rights. People can hold rights as individuals, as married couples and as extended families. Organisations can include condominium and neighbourhood associations, communities, religious associations and business enterprises. Governments at central, regional and local levels can also hold rights. A number of different types of rights can apply to a single spatial unit or to a portion of such a spatial unit. These rights can be an ownership right or a use right or where a usufruct applies. This spatial unit is where the owner or usufruct holder can exercise his or her right. A spatial unit can include the natural resources as well as buildings or other construction within the spatial unit. Rights other than ownership can also include the rights to enter the spatial unit for a specific purpose, e.g. to install and maintain an electrical transmission line, to travel across the spatial unit, to use water from a well, to place communication infrastructure, etc.; and rights to take something from the spatial unit, e.g. firewood, gravel, sand or peat. These secondary rights are sometimes referred to as easements or servitues. Some types of rights are defined in formal law, with examples being public tenure rights (which are held by the state) and private tenure rights (which are held by private individuals and others). However, many legitimate rights have no legal status under a country's law. For example, customary tenure rights, where the collective and occasionally individual rights are created by custom, are usually not recognised in formal law, but legal recognition is becoming more common. Informal tenure rights are often created spontaneously in informal settlements and are not recognised by formal law. However, the informal rights can be used as the basis for the creation of legally recognised rights where the law allows.

The objective of the FFP approach is to ensure security of tenure for all. Therefore, types of rights that are legally recognised within a country need to be increased to ensure comprehensive coverage of the country. This process of including legitimate tenure types in the formal system through the revision of legislation is called national 'recognition'. For example, where communities with customary tenure are recognised as the legal owners of the

Building Fit-For-Purpose Land Administration Systems: Providing Security of Tenure for All (8392)
Christiaan Lemmen (Netherlands), Stig Enemark (Denmark) and Robin McLaren (United Kingdom)

FIG Working Week 2016
Recovery from Disaster
Christchurch, New Zealand, May 2–6, 2016

land and other natural resources on behalf of their members, the spatial areas owned collectively by such a community can be identified as a spatial unit(s). The identification of the spatial units under the ownership of the communities can help them to protect their rights against encroachment or by others. Also new forms of evidence on who holds the rights need to be recognised where the focus is on the necessary proofs of individuals, families or groups, rather than complete evidence.

Countries need to establish a consultative and participatory process for identifying which rights are legitimate. The VGGTs (paragraph 4.4) provide guidance on this process: *Based on an examination of tenure rights in line with national law, states should provide legal recognition for legitimate tenure rights not currently protected by law. Policies and laws that ensure tenure rights should be non-discriminatory and gender sensitive. Consistent with the principles of consultation and participation of these guidelines, states should define through widely publicized rules the categories of rights that are considered legitimate. All forms of tenure should provide all persons with a degree of tenure security which guarantees legal protection against forced evictions that are inconsistent with states' existing obligations under national and international law, and against harassment and other threats.*

The end result of this recognition process is a set of categories of legitimate rights officially agreed to within the country, which are legitimate under current legislation or proposed revised legislation. This will ensure that the FFP approach can record and register all rights across a country and create a truly national land administration solution. This process could be tied to the creation of a national digital map of tenure types.

Iterative Revision of Legislation to support Legitimate Rights. Once the recognition process has been successfully completed through a consultative and participatory approach, the government agreed categories of legitimate rights will need to be protected by law. This will require changes to be made to the corresponding laws and regulations, and possibly the constitution, of the country. Furthermore, the introduction of FFP recordation approaches for the boundaries of spatial units and to necessary rather than complete proof about persons may well require that modifications be made to the corresponding laws and regulations. For example, in some countries the regulations mandate the use of specific surveying equipment, data quality specifications and complete evidence on persons such as citizenship, marriage, death and divorce certificates. These unnecessary constraints will have to be removed to accommodate flexibility under the FFP approach.

Where these legal changes take a long time to implement then countries can still push ahead with the national FFP program. There are a number of options:
− Pass an overarching law to provide legal status to legitimate rights covered the FFP land administration program. The detailed land laws can then be updated at a later stage.
− The program can schedule the recording of the legitimate rights to be recorded and legalised later in the program;
− Issue provisional land certificates in areas of legitimate rights; or

Building Fit-For-Purpose Land Administration Systems: Providing Security of Tenure for All (8392)
Christiaan Lemmen (Netherlands), Stig Enemark (Denmark) and Robin McLaren (United Kingdom)

FIG Working Week 2016
Recovery from Disaster
Christchurch, New Zealand, May 2–6, 2016

– Incrementally provide legal status for legitimate rights through experience with bottom-up pro-poor recordation initiatives.

Adjudication and Recordation in the Field. The process of recording evidence of land rights in the field should follow recognised pro-poor recordation, participatory approaches and comprises three main elements of information: the location where the right can be enjoyed; the nature of the right such as the right to do what, when and how – including associated responsibilities and constraints; and the person(s) or body who holds the right.

When adopting a "visible boundaries" approach, the boundaries are easily identified in aerial/ satellite imagery by their physical appearance and the connected land rights can be identified directly in the field through a participatory process that involves all local stakeholders. Once these physical boundaries are agreed to by the parties and identified on the aerial/satellite imagery then they can be described as the boundary although the precise legal line is not determined. Not all boundaries will be visible in imagery. The predominant use of aerial imagery will have to be supplements with suitable methods of field surveys for capturing non-visible boundaries where relevant and needed. A print of aerial/satellite imagery – or a digital image on a tablet or a mobile phone - can be used directly in the field to identify and delineate the spatial unit boundaries using the visible boundary approach. By including the local community, the boundaries can be identified and drawn directly on the imagery and the spatial units numbered for reference to the connected land rights. Imagery is easily understood by local community and by identifying the boundaries on the map they can be agreed to by all relevant stakeholders before issuing certificates of the connected land rights. Where no official IDs are available the identification of people will be through the witness of community leaders. This participatory process of adjudication should be managed by locally trained land officers acting as trusted intermediaries while the land professionals (surveyors) should manage the overall process of building the spatial framework. Any non-visible boundaries can be added using hand held GPS or field survey measurements. Linking non spatial data can be organised in the field. At the end of the adjudication process the owner or occupier of the spatial unit will receive a 'piece of paper' with the unique identifier number of the spatial unit. This is taken to the land officer who is collecting the information about the nature of the right and the person and the unique identifier number will link all information about the spatial unit using standardised forms. In countries where citizens' official IDs are available, government will have completed the identification of individuals and there is no need to integrate the process of person identification into this recording process. Otherwise, identification of people will be through the witness of community leaders.

Note: rights may be overlapping. Informal rights such as occupancy, adverse possession, tenancy, use rights, customary rights, indigenous tenure, etc. as well as the formal ones are recognised and managed in the FFP land administration system.

Identification and adjudication is a vital part of this process and opportunities should be available for the local community to check and agree on the evidence of land rights collected. The community normally 'sits around the map'. In this social process, people determine that their own rights are correct and that there are no conflicting claims. Locally trained land

Building Fit-For-Purpose Land Administration Systems: Providing Security of Tenure for All (8392)
Christiaan Lemmen (Netherlands), Stig Enemark (Denmark) and Robin McLaren (United Kingdom)

FIG Working Week 2016
Recovery from Disaster
Christchurch, New Zealand, May 2–6, 2016

officers guide this community activity and help with solving disputes. This process of recording and managing land right information about land under customary tenure should be managed through co-management between the Traditional Authorities and community leaders and the formal governmental land institutions, wherever possible.

Unresolved Disputes. The FFP approach should ensure that effective, local dispute resolution mechanisms attempt to resolve as many conflicting claims as possible. However, inevitably, there will be disputes that cannot be resolved locally and these will have to be considered through other mechanisms, and potentially the courts.

Registration of Rights in National Land Register. Once the recorded and adjudicated rights are completed and have no known outstanding conflicting claims then rights can be registered in the National Land Register.

Land Certificate to Citizen. The land administration authority can then issue evidence of registration to the citizens in the form of a certificate. This can take many forms, e.g. title or certificate of occupancy, depending on the right, its status and the underlying legal framework. This is the stage when the initial FFP approach process to register a right is complete. However, under the principles of the FFP approach the right can be incrementally upgraded over time. This is described under the 'Review Conversion' stage below.

Review for Conversion. This activity is a due diligence process to determine whether an existing right in the national register meets a set of conditions to allow its security to be increased. The review process, for example, will investigate the procedure followed to create the right and determine if it is legal, extra-legal, legitimate or non-legitimate. The following table is used to explain this.

Table 1. Conversion between different kinds of tenure (Zevenbergen, 2012).

	Legitimate	Non-legitimate
Legal	Law followed in letter and spirit; usually documented via titles	Law followed in letter but not in spirit; titles gotten via unethical processes
Extra-legal	Societal and/or historical accepted access to land; no (official) documents	Criminal land access

Any outstanding claims by third parties may also be identified and investigated. New evidence may be available to strengthen the right or the accuracy of the boundary may be increased. If the review process concludes that the agreed conditions for change are met then the security of the right will be changed along the continuum of rights. Another example of this review conversion process could involve an upgrade from a provisional to a full legal right. Some countries may initially only issue a provisional title until say 10 years have passed, allowing other possible claims on the rights to be made by third parties. At this stage and with no conflicting claims then full title can be granted.

Building Fit-For-Purpose Land Administration Systems: Providing Security of Tenure for All (8392)
Christiaan Lemmen (Netherlands), Stig Enemark (Denmark) and Robin McLaren (United Kingdom)

FIG Working Week 2016
Recovery from Disaster
Christchurch, New Zealand, May 2–6, 2016

4.2 Local Pro-Poor Recordation Initiatives

Local Recognition of Tenure Types. As within the national approach the local approach requires a recognition of tenure types. This requires coordination between state and customary or other social authorities through co-management.

Local Pro-Poor Recordation Initiatives. Although the objective of the FFP land administration approach is to have a country specific national FFP strategy that encompasses all land administration activities and all tenure types, the FFP approach also supports local pro-poor recordation activities that can be integrated into the FFP national land register. A number of pro-poor land recordation approaches and solutions have been developed and are active around the world. There are extensive initiatives for safeguarding the rights of indigenous communities and techniques to crowdsource land rights are also emerging. Pro-poor recordation initiatives have a significant role in countries where there is a lack of political commitment or other constraints to recognise all legitimate rights. As well as providing local forms of security of tenure, the initiatives may also raise the profile of legitimate right holders and trigger incremental change at the national level. Wherever possible, local initiatives should coordinate with the national level to plan for future national recognition of the legitimate rights – and National government should provide guidance for undertaking such local recordation.

Review for Integration. This activity is a due diligence process to determine whether legitimate rights, recorded under local pro-poor recordation initiatives, can be considered to meet a set of conditions to allow their integration into the national land register.

5. THE SOCIAL TENURE DOMAIN MODEL (STDM)

The STDM is recommended to model the social tenure relationships between people and land found within legitimate rights (FIG/GLTN, 2010; see also ISO, 2012b), see Figure 3. It describes relationships between people and land in an unconventional manner in that it tackles land administration needs in hitherto neglected communities, such as people in informal settlements and customary areas. It supports development and maintenance of records in areas where regular or formal registration of land rights is not the norm. It focuses on land and land rights, which are neither registered nor registerable, as well as overlapping claims, that may have to be adjudicated both in terms of the 'who', the 'where' and the 'what' right. In other words, the emphasis is on social tenure relationships as embedded in the continuum of land rights. This means informal rights such as occupancy, adverse possession, tenancy, use rights (this can be formal as well), customary rights, indigenous tenure, etc. as well as the formal ones are recognised and supported (with regard to information management) in a STDM enabled land administration system.

Building Fit-For-Purpose Land Administration Systems: Providing Security of Tenure for All (8392)
Christiaan Lemmen (Netherlands), Stig Enemark (Denmark) and Robin McLaren (United Kingdom)

FIG Working Week 2016
Recovery from Disaster
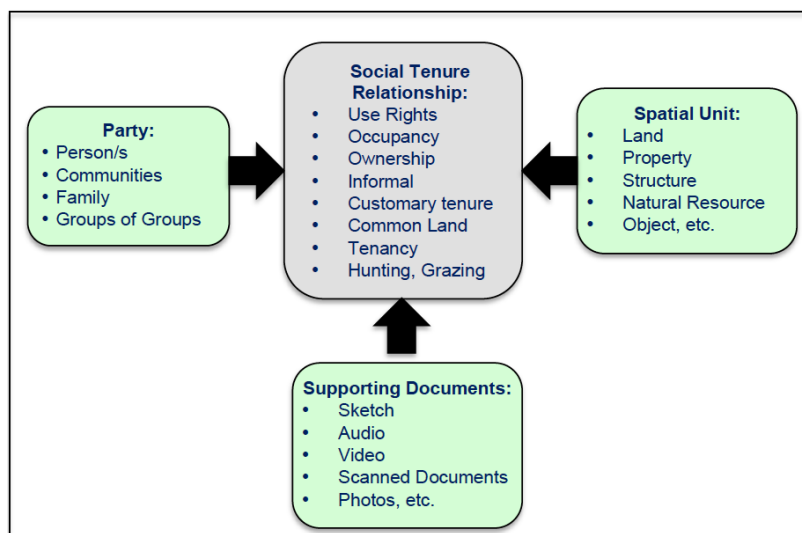Christchurch, New Zealand, May 2–6, 2016

Figure 3: The STDM Conceptual Model explains the interrelationship between parties, social tenure, and the spatial units supported by relevant documents. (UN-HABITAT/GLTN, 2014)

The STDM accommodates a range of spatial units ('where', e.g. a piece of land that can be represented as one point – inside a polygon, a set of lines, a polygon with low / high accuracy coordinates, etc.). Similarly, the STDM records all types of right holders ('who', e.g. individuals, couples, households, groups with defined and non-defined membership, group of groups, religious organisations, companies, municipalities, government departments, etc.). In regard to evidence, STDM handles the imprecision and possible ambiguities that may arise in the description of land rights. The implementation of data collection ("as is" situation) and maintenance of those data can be based on administrative procedures (Augustinus & Lemmen, 2011; FIG/WB, 2014; Barry & Augustinus, 2015, Enemark et al. 2015). With STDM it is possible to bring the social element into land administration by:

−   Recognising informal tenure arrangements based on the continuum of land rights;
−   Unpacking existing social tenures, by means of classifications and coding of land rights and inclusion of those tenure types in data collection and maintenance;
−   Opening options for innovative and incremental approaches to improving tenure security by means of conversions;
−   Bridging the gap between informal systems and formal systems that emphasise titles by means of standardised approaches allowing legal and technical interoperability between basic land recordation and formal registrations;
−   Giving a snap-shot of the 'people-land' relationships at any given time; and
−   Informing the land administration activities about the actual situation on the ground.

STDM Community Empowerment in Mashimoni, Nairobi
The Mashimoni informal settlement covers 9.5 ha and is located in the east of Nairobi. The site owned by the State was a former quarry and people have been squatting since 1975. The densely populated slum faced serious problems such as fire, inadequate infrastructure and health issues. People were also threatened by eviction due to close proximity to a business centre with high associated land values. The community formed a Resident-Association in 2010 with the main focus on solving the land issue.

Building Fit-For-Purpose Land Administration Systems: Providing Security of Tenure for All (8392)
Christiaan Lemmen (Netherlands), Stig Enemark (Denmark) and Robin McLaren (United Kingdom)

FIG Working Week 2016
Recovery from Disaster
Christchurch, New Zealand, May 2–6, 2016

A first enumeration was organised in 2010 to obtain information on the settlement and the residents. The community then negotiated with the Ministry of Lands for the national government to hand over the land to the residents. The land was subsequently safeguarded through a cabinet resolution. Community leaders helped to introduce STDM in 2011 with support of the Pamoja Trust and community members were trained. The community is using STDM for mapping and enumerations towards tenure regularisation under the Kenya Informal Settlement Improvement Project (KISIP). Data on 'structures' ('slum houses') and 'users' was collected, linked, verified and digitised using STDM facilitated data access. STDM has gathered evidence on land tenure and on the legitimacy of people to land relations in litigation and negotiation and helped to avoid evictions. Conflicts in cases of double or triple selling of structures has been reduced. Data has also been collected on utilities, sanitation and facilities to demonstrate the scale of problems. This has led to the installation of 75 toilets across the slum and supported negotiations to remove an open sewer.

STDM has empowered and enabled the community to have a say in planning issues and participation and transparency is encouraged. Electricity is now available across the slum and the community have a five year improvement / development plan. This STDM project has been sustainable and has successfully built and empowered a slum community to significantly improve their environment and security of tenure. The Mashimoni experience has resulted in the broader usage of STDM under KISIP.

Joseph Arthur, STDM Co-ordinator, Muungano Mashimoni Number Ten; Cyprian Selebalo and John Gitau, UN-HABITAT/GLTN.

6. NATIONAL TENURE ATLAS

Implementation of the continuum approach at a national level as presented above requires a detailed typology (a complete categorisation) of the various forms of tenures and their mapping. Different authorities have different responsibilities in the process of recognition, recording, registering and managing the various tenure types within different areas such urban and rural. Therefore, at national level coordination is needed (Lemmen et al., 2015; Sears et al., 2015). For this purpose it is recommended that a National (digital) Tenure Atlas be developed for providing an overview of the spatial distribution of legitimate tenure types across a country, e.g. areas of customary tenure, areas of informal tenure, areas of private ownership, state land, etc. This will help to identify where land rights documentation needs to be undertaken, define zoning for better manage natural resources, identify where a land market can exist and enable administration and coordination between state and customary authorities through co-management. The boundaries of a territory of a tenure system can be labelled as fuzzy, visible or fixed. Those boundary labels should be included in the National Tenure Atlas. Figure 4 is an example of such a National Tenure Atlas.
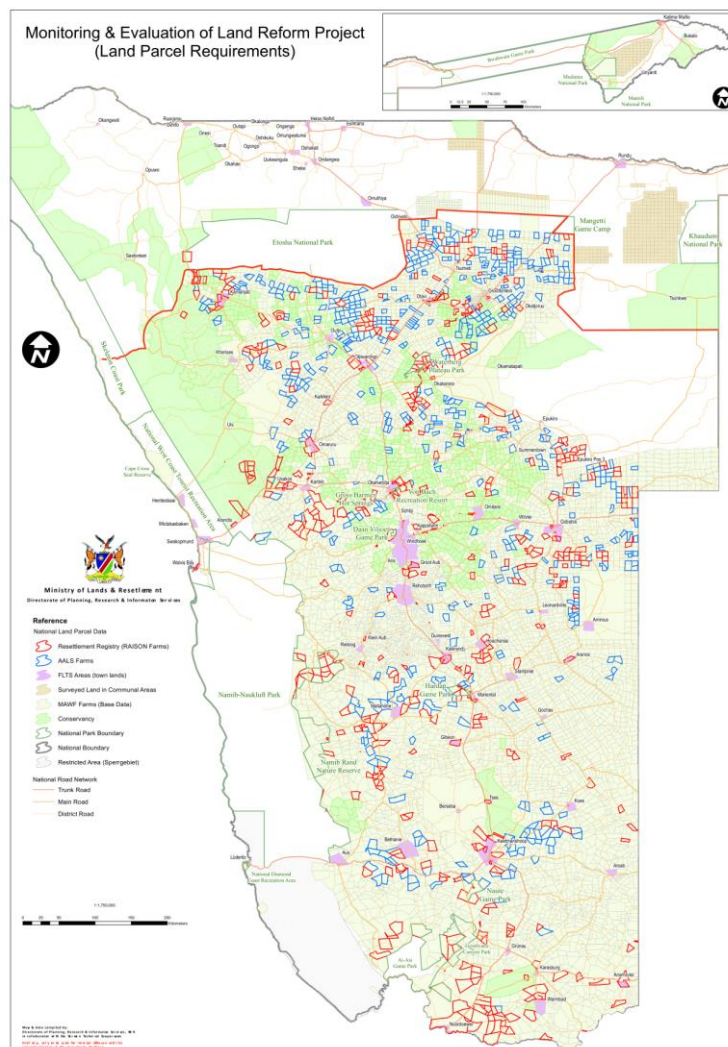
Building Fit-For-Purpose Land Administration Systems: Providing Security of Tenure for All (8392)
Christiaan Lemmen (Netherlands), Stig Enemark (Denmark) and Robin McLaren (United Kingdom)

FIG Working Week 2016
Recovery from Disaster
Christchurch, New Zealand, May 2–6, 2016

Figure 4: Example of a National Tenure Atlas. Source: Ministry of Lands and Resettlement, Namibia

7. FLEXIBLE RECORDATION

The objective of the FFP approach is to develop a nationwide land administration system with special emphasis on providing security of tenure for all. The FFP approach, however, is pro-poor and also supports the building of locally based land recordation systems that can run in parallel with the nationwide strategy or as separate activities in support of local needs. The resulting recorded rights will then be managed in a local solution, but normally with no national legal standing. However, these recorded legitimate rights can subsequently be reviewed and integrated into the National register as explained in Enemark et al. (2015) and Enemark et al. (2016). Land administration authorities should then provide guidance to stakeholders performing local recordation on what information and evidence is gathered during local recordation to ensure that the data can be easily reviewed and integrated into the national register.

Building Fit-For-Purpose Land Administration Systems: Providing Security of Tenure for All (8392)
Christiaan Lemmen (Netherlands), Stig Enemark (Denmark) and Robin McLaren (United Kingdom)

FIG Working Week 2016
Recovery from Disaster
Christchurch, New Zealand, May 2–6, 2016

Existing conventional land administration systems only take into account conventional legal forms of evidence and are spatial unit (parcel) based. This means that they only cover a subset of all forms of land tenure. Globally there are many examples of informal settlement residents, slum dwellers, and families and groups living under customary tenure, indigenous people, pastoralists, refugees etc. whose land use rights are not capable of being integrated into a conventional land administration system. Therefore, a flexible approach is needed to include integration and interoperability of different kinds of land recordation in the design to support of conversion of rights from one step on the tenure ladder to another.

UN-HABITAT/GLTN (2012a, 2012b) has provided guidance for designing such a flexible approach. Designing a Land Records System for the Poor is the first attempt to fill the gaps in development of new forms of land recordation to assist the implementation of a continuum of land rights approach at scale. The system should build on existing local approaches, where, in many situations, the social land tenure system includes elements that would form an integral part of a pro-poor system. Community rules in identifying leaders should be followed. Recognised leaders know the local rules and the various land interests in the community.

Land administration systems support tenure security, and deliver the information required to make land management work at scale. Without this land information then management of urban and rural development is simply not possible. This technical gap of information impacts access to safe water, sanitation, community facilities by the poor and contributes to unequal access to land, conflicts over land, land grabbing and the destruction of the environment. It also negatively affects quality of life and livelihoods. A land information system is essential to address these issues and contribute to increase security of tenure, particularly for the poor, for overall land management, and to make it possible for the system of land administration to extend to scale and cover the majority of a country. A pro poor land recordation system is needed, e.g. based on Zevenbergen et al. 2012 and Zevenbergen et al. 2013).

The recordation system should be affordable for the state and its citizens particularly the poor to enable the country to scale up the system. It also needs to be transparent, accessible and equitable to ensure delivery to the poor. The system has to deal with complex, layered rights. Next to formal tenures, it needs to take care of customary and informal systems, as well as secondary rights. The system should build on social tenures rather than strict paper trails. It is important that the system is simple, quick and inexpensive and avoids costly experts and fees. The STDM conceptual model meets those criteria.

The land recordation system should be physically close to the people to improve record accuracy (updating, conversion), to ensure ease of access and to improve land management and planning. The pro-poor land records' office should not be a totally independent entity, but ideally should be embedded in the larger public administration structure. The system has to deliver preventative justice by having land records that contain objective information that clarifies the rights and contractual relations, and limits the need to go court. The system should build on co-management of pro-poor land records, including identifying witnesses, creating evidence, building the currency and legitimacy of land records. Strong checks and balances are needed to protect vulnerable groups.

Building Fit-For-Purpose Land Administration Systems: Providing Security of Tenure for All (8392)
Christiaan Lemmen (Netherlands), Stig Enemark (Denmark) and Robin McLaren (United Kingdom)

FIG Working Week 2016
Recovery from Disaster
Christchurch, New Zealand, May 2–6, 2016

New supporting roles can be introduced in order to organise participatory approaches. The community leader brings knowledge in the categorisation of rights and the area where those rights apply. The filling of standard forms for administrative attributes can be supported by trained local staff while maintaining a neutral position. It is important that mechanisms are in place to guarantee proper link between the non-spatial attributes (names, rights) and the spatial units where those attributes apply; this is a task for the trained local staff – also responsible for drawing the boundaries on the orthophoto or aerial imagery. An appointed local record keeper takes care for recordation and publication and a social authority should act as classifier and manager of the data collection process and maintenance of the records. The land administration authorities should provide guidance for undertaking the local recordation in order to facilitate easy integration into the national register at a later stage. See also Zevenbergen et al. (2012) and Zevenbergen et al. (2013).

8. ICT STRATEGY

Although the ultimate ICT solution will be sophisticated, nationally scalable and support features such as e-signatures, e-conveyancing and cloud based services, for example, it should be emphasised that the initial ICT solutions will have to be rather simple to accommodate limitations in the telecom infrastructure and ICT skills in many developing countries.

There is a tendency in national land administration system programmes in developing countries to invest in expensive, sophisticated ICT solutions at the start of programmes. This rarely proves successful. Instead, the initial ICT solutions should model the overall Minimum Viable Product approach being advocated for FFP land administration. This will initially focus on a set of tools to capture the land rights. A simpler, lower cost ICT solution at the start of the programme will provide flexibility to accommodate changes in business processes, customer requirements and resource availability identified through assessing initial operations. However, incremental improvement does not mean fragmentation. ICT improvements need to be managed within an agreed ICT strategy that is directly informed by the business strategy defined in the country specific FFP land administration strategy. The profile and governance of the ICT department should be at the highest level within the land administration institution to ensure the maximum benefits of ICT to the business.

Too often, investments in ICT are isolated within projects and do not consider the possibility of the wider sharing and re-use of the resources. This narrow perspective has led, for example, to multiple purchases of the same remote sensing imagery by different agencies and the generation of multiple base maps with varying specifications. Apart from the simple collaboration approach, the adoption of interoperability standards and web services is promoting the implementation of shared services leading to the creation of National Spatial Data Infrastructures (NSDI).

The implementation of ICT solutions to support FFP land administration will require extensions to the legal & regulatory framework to accommodate e-signatures, e-conveyancing, and information privacy, for example.

Building Fit-For-Purpose Land Administration Systems: Providing Security of Tenure for All (8392)
Christiaan Lemmen (Netherlands), Stig Enemark (Denmark) and Robin McLaren (United Kingdom)

FIG Working Week 2016
Recovery from Disaster
Christchurch, New Zealand, May 2–6, 2016

Cloud computing is a set of services or resources offered by different providers through the Internet and you connect to these services through Internet. Cloud computing is about putting more of an enterprise's computing systems, data and services on the cloud and less on personal computers or servers that the enterprise runs for itself.

All existing paper (scanned) and electronic records should be archived using international standard on records management under a clear archiving strategy. It is recommended that new paper-based applications should be scanned upon receipt so that many users can access the applications simultaneously to speed up processing. The Open Archival Information System reference model, ISO 14721:2003 (ISO, 2012a) for structuring and operating archives, is an International Standard and should be adopted.

Business continuity and data resilience must be robustly supported. This will include the use of a business continuity centre and a disaster recovery centre that can be ideally shared across government.

Access to open land information prior to receiving security of tenure can potentially empower the wrong people, leading to land grabbing and corruption. The disclosure of natural resources associated with indigenous people, for example, may precipitate unwanted exploitation.

9. CONCLUDING REMARKS

This paper presented some guiding principles for building of the FFP approach at country level. Implementation of a FFP approach in land administration is strongly related to the recognition of the continuum of land rights. Implementation of the FFP approach means to recognise, record and review land rights. The functionality of the Social Tenure Domain Model allows modelling and managing the complex social tenure relationships between people and land found within legitimate rights. Implementation of a FFP approach at scale requires a ICT approach based on a strategy.

REFERENCES

Augustinus, C. and C.H.J. Lemmen, (2011): What is required to bring the social element into land administration? Moving from the Land Administration Domain Model to the Social Tenure Domain Model. World Bank Conference on Land and Poverty

Barry, M. and C. Augustinus, (2015): Property theory, metaphors and the continuum of land rights. UN-HABITAT/GLTN

Enemark, S., R. McLaren and C.H.J. Lemmen, (2016): Scaling Up Responsible Land Governance: Guiding Principles For Building Fit-For-PurposeLand Administration Systems In Developing Countries. World Bank Conference on Land and Poverty

Enemark, S., R. McLaren and C.H.J. Lemmen, (2015): Fit-For-Purpose Land Administration – Guiding Principles. UN-HABITAT/GLTN/Kadaster

Building Fit-For-Purpose Land Administration Systems: Providing Security of Tenure for All (8392)
Christiaan Lemmen (Netherlands), Stig Enemark (Denmark) and Robin McLaren (United Kingdom)

FIG Working Week 2016
Recovery from Disaster
Christchurch, New Zealand, May 2–6, 2016

Deininger, K., D. Byerlee, J. Lindsay, A. Norton, H. Selod and M. Stickler, M., (2011): Rising Global Interest in Farmland: Can It Yield Sustainable and Equitable Benefits? World Bank

FIG/GLTN, (2010): The Social Tenure Domain Model − A pro-poor land tool. FIG Publications 52

FIG/WB, (2014): Fit-For-Purpose Land Administration. FIG Publications 60

ISO, (2012a): ISO 14721:2012 Space data and information transfer systems -- Open archival information system (OAIS) -- Reference model

ISO, (2012b): ISO 19152:2012, Geographic Information - Land Administration DomainModel

Lemmen, C., J. Plessis, C. Augustinus, P. Laarakker, K. Zeeuw, K., P. Saers and M. Molendijk, (2015): The Operationalisation of the 'Continuum of Land Rights' at Country Level. World Bank Conference on Land and Poverty

McLaren, R., S. Enemark and C.H.J. Lemmen, (2016): Guiding Principles For Building Fit-For-Purpose Land Administration Systems in Developing Countries: Capacity Development, Change Management and Project Delivery. World Bank Conference on Land and Poverty

Saers, P., C. Lemmen, D. Antonio, C. Augustinus, M. Molendijk and K. De Zeeuw (2015): Social Tenure Domain Model - A Strategy towards Country Implementation. World Bank Conference on Land and Poverty

UN-ECE (2005): Land Administration in the UN-ECE Region

UN-ECE (1996): Land Administration Guidelines

UN-FAO, (2015): Governance of tenure technical guide - Recording tenure rights and parcels. In Press

UN-FAO, (2012): Voluntary Guidelines on the Responsible Governance of Tenure of Land, Fisheries and Forests in the Context of Food Security

UN-HABITAT/GLTN, (2012a): Handling Land–Innovative Tools for Land Governance and Secure Tenure

UN-HABITAT/GLTN, (2012b): Designing a Land Records System for the Poor

UN-HABITAT/GLTN, (2008): Secure Land Rights for All

Zevenbergen, J., C. Augustinus, D. Antonio and R. Bennett, (2013): Pro-poor land administration: principles for recording the land rights of the underrepresented. Land Use Policy, 31(2013)595-604

Zevenbergen, J., C. Augustinus and R. Bennett, (2012): Towards a design for a propoor land recordation system. World Bank Conference on Land and Poverty

BIOGRAPHICAL NOTES

Christiaan Lemmen is international consultant at Kadaster International, the Netherlands. He is chair of the FIG Working Group 7.1 'Fit-For-Purpose Land Administration' and director of the FIG Bureau of Land Records and Cadastre, OICRF.
Email: Chrit.Lemmen@kadaster.nl Web: http://www.itc.nl/resumes/lemmen

Building Fit-For-Purpose Land Administration Systems: Providing Security of Tenure for All (8392)
Christiaan Lemmen (Netherlands), Stig Enemark (Denmark) and Robin McLaren (United Kingdom)

FIG Working Week 2016
Recovery from Disaster
Christchurch, New Zealand, May 2–6, 2016

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 Web: http://personprofil.aau.dk/100037?lang=en

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 strategies.
Email: robin.mclaren@KnowEdge.com Web: www.KnowEdge.com

Building Fit-For-Purpose Land Administration Systems: Providing Security of Tenure for All (8392)
Christiaan Lemmen (Netherlands), Stig Enemark (Denmark) and Robin McLaren (United Kingdom)

FIG Working Week 2016
Recovery from Disaster
Christchurch, New Zealand, May 2–6, 2016