GUIDE 2 /2012

SUSTAINING URBAN LAND INFORMATION:

A FRAMEWORK BASED ON EXPERIENCES IN POST-CONFLICT AND DEVELOPING COUNTRIES

SECURING LAND AND PROPERTY RIGHTS FOR ALL

UN-HABITAT
FOR A BETTER URBAN FUTURE

GLTN
GLOBAL LAND TOOL NETWORK

SUSTAINING URBAN LAND INFORMATION: A FRAMEWORK BASED ON EXPERIENCES IN POST-CONFLICT AND DEVELOPING COUNTRIES

HS Number: HS/116/12E
ISBN Number: (Volume) 978-92-1-132530-0

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ACKNOWLEDGEMENTS:
We are grateful to several UN-Habitat staff members from the regional offices in Africa and Asia and the Pacific who provided access to case studies and experiences in support to the development of this Framework. We are especially grateful to the numerous people in different countries who provided material on the development and use of land information for this publication.

Editing and layout: Victoria Quinlan, Stefanie Freccia
Support: Victor Wainaina; Esther Njeri, Naomi Mukora, Vera Marosi
Sponsors: Norwegian Government and Swedish International Development Cooperation (Sida-Sweden)
Printing: UNON, Publishing Services Section, Nairobi, ISO 14001:2004-certified.

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FOREWORD

Land in cities is a critical component of urban development, particularly when dealing with land use, urban planning, taxation and protection of fundamental rights. Unfortunately, insecurity of land tenure is a major bottleneck for urban development and severely affects the lives of poor urban people.

To address this challenge many urban projects have been implemented to develop comprehensive spatial databases on land that are intended to improve urban and environmental planning, raise revenues through property taxation and improve land tenure security.

New technologies, such as very-high resolution satellite images, geographical information systems, the processing capacity of computers and the internet, have developed rapidly over the last 10 years and are a driving force behind the development of urban digital databases.

Unfortunately, many urban land information projects have partially or completely failed, mainly because they have ignored or underestimated the fact that land information needs constant updating and, above all, has to be anchored in stable and capable land institutions.

This publication and the collection of pertinent case studies show that where there are no good land governance practices, such as in many post-conflict countries, land information can only be used to a limited extent. Projects should be designed with these limitations in mind but should also be seen as building blocks and experiences for the development of more comprehensive and integrated land information systems.

I am convinced it is useful to examine UN-Habitat's experiences in countries that have developed and use land information, for example Libya, Somalia and Afghanistan, which demonstrate how to create land databases that have information that can be fully used.

Dr. Joan Clos,
Under-Secretary-General of the United Nations,
Executive Director UN-Habitat.

EXECUTIVE SUMMARY

Sustainable urban development depends on how well land is accessed, used, transferred and managed for the benefit of the current and growing urban population. Ensuring sustainable urban development requires targeted land information. However, it is not enough merely to collect and store land-based data. Equal attention needs to be paid to the optimum use of available data. This does not always happen and collected land-based data are frequently not shared among projects and programmes. Scattered databases and duplications of land-related data are common. There is also a general tendency to focus too much on data and too little on governance issues.

This document is intended to support the development of information about land (use, access, ownership, taxation, value, transfer and development potential) in a sustainable and effective way to facilitate urban land management. This framework draws on a range of field operations by UN-Habitat and others. It is the culmination of lessons learnt from a number of case studies covering a variety of developing and post-conflict countries (UN-Habitat, 2012). The study of countries' experiences, based on the framework, focused on three main urban land management applications, namely: land administration (security of tenure and property administration), spatial planning (including regional and urban planning, settlement upgrading and regularization) and environmental management and planning. This framework is developed as a normative product in line with UN-Habitat's Medium Term Strategic and Institutional Plan (MTSIP) and its Enhanced Normative and Operational Framework (ENOF).

More specifically, the framework addresses the mismatch between the supply of land information systems and the demand for and use of land information by urban management practitioners. The framework pays particular attention to land information projects in developing countries, especially post-conflict countries, where there is limited capacity in local and central government agencies, where institutions are weak and unstable and which often experience a high staff turnover. These challenges are identified and guidance is provided on the possible way forward.

The framework also provides tangible options on how to take advantage of donor-funded projects and programmes to make effective use of land information. It addresses how to deal with pressure and funding intended "to do something about land". The fact that urban interventions (irrespective of the funding source) have different agendas and ideas results in all kinds of stand-alone projects and programmes on issues related to land information. These include evaluation of land policies, land laws and regulations, upgrading and regularization of informal settlements and capacity building. The framework shows how to bring together scattered urban land information initiatives and experiences, and how to strengthen the role of the various stakeholders, including local and national institutions, and their coordination. It recommends an incremental approach for implementing land information for sustainable city development. A five-step process is proposed as a way to manage sustainable land information, particularly for developing and post-conflict countries.

The framework encourages raising awareness on the importance of land information and improving the quality of land information through sharing experiences and lessons learnt. It also encourages gradually streamlining approaches and developing land laws, land tenure policies, and incrementally strengthening land information offices. It is intended for all urban actors involved in management and use of land information to bridge urban policies and implementation needs in post-conflict and developing countries.

One of the main arguments in this framework document is to approach the development of land information systems for urban management as an integral part of broader urban land governance. While LIS technology is increasingly available and powerful, and has more software functionalities, it is very important to keep land information systems simple with a view to adding value to existing initiatives.

The framework document offers a step-by-step guide to developing and implementing relevant land information for sustainable urban development. The analytical framework aims to facilitate a situational analysis of land information systems in a given country in order to assess what is feasible under specific conditions and what the limiting and enabling factors are. Such an analysis would form the basis for the development of sustainable and relevant land information that could support urban land management projects and programmes.

[1] In this document, a land information system is broadly understood to mean the combination of technology, data, people and institutional capacity for collecting, managing, disseminating and using land-related data.

01

INTRODUCTION

1. INTRODUCTION

Urban land management deals with ensuring land resources are used efficiently, for example to provide shelter and urban infrastructure, services and other amenities. Land administration is primarily concerned with a government's responsibility to provide security of tenure and information about tenure issues for the property market, and governmental (for example urban and spatial planning) and private business activities. The urban environment needs relevant data to function efficiently, now and in the future, which land information systems such as cadastre and land records can provide. In other words, governments at local and central levels need to provide an institutional setup, including policy, legislation and organization, for the implementation of sustainable land information. Governments should also ensure enforcement of legislation and dissemination systems to make the information widely available, to benefit tenure security, property markets, land administration, land management, land-use planning, taxation, business and the community in general. Land information is often collected for various projects and programmes, for a range of purposes and by a multitude of actors. Tools and mechanisms are needed to ensure that data collection exercises contribute to the overall objective of sustainable urban development.

The urban environment needs relevant data to function efficiently, now and in the future, which land information systems such as cadastre and land records can provide. In other words, governments at local and central levels need to provide an institutional setup, including policy, legislation and organization, for the implementation of sustainable land information. Governments should also ensure enforcement of legislation and dissemination systems to make the information widely available, to benefit tenure security, property markets, land administration, land management, land-use planning, taxation, business and the community in general.

Techniques to support efficient land management and administration may include the establishment of efficient organizations, transparent procedures for decision-making and information technology for collecting, processing, archiving and disseminating information. To be meaningful, the information needs a geographical component, which includes tools for surveying and mapping and geographical analyses, using, for instance, geographical information systems (GIS). Such systems must be able to produce data

and information to service the general public and support urban management decisions at an affordable cost. Land users and managers who will benefit must feel that the fees and rates they have to pay for the services are worth the value that the system produces for them. This is particularly important for pro-poor systems if improved land administration is to contribute to the eradication of poverty.

Management of institutions dealing with land information could be independent from the general public administration. For instance, it is possible to control income and expenditure, staffing and salaries within a particular frame given by government through a goal- and result-based management system. The responsible officers should be able to make decisions, based on law, without political influence. National land laws should define certain criteria for decision-making, providing room for economic development and also protecting existing rights, whether formal, customary or informal. The legal and policy frameworks should give women and men equal opportunities and protection in owning property or accessing land and its resources. The rules should promote efficient land management and protect environmental and cultural values. Appeals against decisions should be made to courts that are specially designed for land administration. Adequate and up-to-date land information is necessary for efficient urban management.

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Since various interests exist in land and are vested in people (including non-natural people), there is a clear benefit to establishing and sustaining reliable land-related information that is accessible to all. Reliable land information is also critical for urban planning, particularly in post-conflict, post-disaster and developing countries. The purpose of urban planning is to make cities liveable and sustain human activities in a sustainable environment. More often than not, urban planning is ad hoc and is not based on sound information and technologies.

Spatial technologies now provide a range of means to collect data and information critical for effective urban and spatial planning. These technologies include GPS, GIS, remote sensing and geo-visualisation. It is important that such technologies are used wisely to ensure that they also deliver to the poor and service future urban generations. Lack of resources and human capacity has often prevented urban managers from effectively using land information in their planning exercise. However, city councils and governments (local and central) around the world are also using innovations to add value to land information for urban planning. For example, a range of financial mechanisms have been attempted, such as cost-recovery and value-adding information strategies and public-private partnerships.

To bring the land information closer to the needs of sustainable urban development, several projects are screened in this document to assess what works and what does not. The assessment identified five critical elements essential to ensuring a sustainable land information system (LIS) for urban development. They are: good land governance, institutionalization and long-term approach, stakeholder involvement, balancing the essential components of the land information system, and ensuring wider access to and use of urban LIS.

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The document is structured as follows: first, the purpose and objectives of the framework are presented; second, the scope of the framework is presented along with the key land information issues that will be addressed; third, the analytical framework of a LIS for sustainable urban development is presented where each of the five critical elements to ensuring a sustainable urban LIS are presented and illustrated with selected case studies; fourth, essential elements of good practices of LIS for urban land management are presented; fifth, step-by-step suggestions are made to assist the development and design of land information. Finally, the document summarizes the key elements and recommendations with illustrations compiled under a "do's and don'ts" of a LIS for sustainable urban management.

[1] The full report on which this framework is based is available at www.gltn.net under the title Managing Urban Land Information.

01 INTRODUCTION

The framework covers five main criteria relevant for the development and use of land information:

1. Level of land governance;
2. Approach (embedding of land information in stable land institutions);
3. Involvement of stakeholders;
4. Essential components of a land information system (LIS);
5. Access and use of land information.

These five criteria are used to analyse the case studies, to develop a step-by-step process to develop sustainable land information and to assist urban land management programmes with adequate, and above all, useful land information.

02 PURPOSE AND OBJECTIVES

2. PURPOSE AND OBJECTIVES

Accurate and up-to-date land information is a pre-requisite to develop and implement projects and programmes on urban land management. Without reliable and up-to-date spatial (referenced) data on land, spatial planning, for example, will be based on scattered and incomplete knowledge of local urban planners.

The more accurate and complete the data is and the more capable and efficient the land institutions are, the better the support that can be given to improve security of land tenure, land taxation, urban planning and to land transactions.

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The rapid evolvement of information and communication technology (ICT), geographical information systems (GIS) and remote sensing imagery with its very-high spatial resolution creates the opportunity for the fast development and use of land information. However, the undeniably positive impacts of ICT development on the quality of and access to land information is not a guarantee that these developments have had a positive impact on the living conditions of poor people or increased the security of land rights especially, in post-conflict, post disaster and developing countries. The mushrooming of several incompatible and overlapping spatial databases, even within the same organization, is very common in many countries. Computers and databases can be found everywhere, but useful urban land information is limited and not easily accessible for everyone to use and build upon. It is common to find that urban data, especially land-based, are tailored to specific short-term projects and do not give a complete picture.

The need for standards, metadata, procedures and development of inter-institutional relations for data exchange and data sharing are emphasized in many reports. However, in many post-conflict countries, and developing countries, those recommendations are of limited value due to underdeveloped and unstable land institutions, weak governance and short-term and limited focus.

Common mistakes with land information are that lots of data are collected but hardly used, or decisions are made without enough information. Therefore, LIS and other urban projects do not often translate into a continuous process, partly because data is collected on an ad-hoc and project basis. Sometimes when a project is completed, there is no systematic hand-over, no proper archiving or documentation. Similarly, with the departure of key staff, land data and knowledge of the data structure also disappears.

The purpose of this framework on sustainable land information for urban land management is to learn from emergent and other practices and it is based on normative guidelines developed by GLTN. The framework document will illustrate how land information can be developed and used for a variety of urban land management applications; it will show how projects can act as incubators of lasting change, and will improve urban planning and the quality of land information in post-conflict and developing countries.

The framework is developed using a “how to” approach that is based on the lessons learnt from several UN-Habitat field experiences in post-conflict and developing countries. In particular, the framework outlines how to develop land information that is feasible, cost effective and can be applied, maintained and gradually improved and expanded to support urban development projects and programmes with tangible and user-required results.

The framework aims to assist, within the limiting factors of governance and land institutions, with cost-effective development, the use and expansion of land information for urban land management.

The suitable application of this framework will avoid wasting resources that cannot be used by institutions or that are too ambitious for the level of governance and capacity of land institutions. The framework stresses that land information goes beyond the possibilities of technology alone and that a modest, realistic, coordinated and incremental approach is needed. To achieve this, the framework advocates for urban land information projects to take into account the five successful criteria outlined in the introduction.

The framework recognizes the challenges of implementing a functional, urban LIS in a context of post-conflict and developing countries. It is therefore important to do a pre-evaluation of the status and situation before embarking on land information projects and programme. Such pre-assessment is essential to define the scale, scope and feasibility of a sustainable land information system for urban management. A quick checklist is provided below.

KEY QUESTIONS TO BE ADDRESSED PRIOR TO OR WHILE DEVELOPING A SUSTAINABLE LAND INFORMATION SYSTEM FOR URBAN LAND MANAGEMENT IN DEVELOPING AND POST-CONFLICT COUNTRIES.

What to do	Sample questions
1. Define scale	How to "implement urban land management and land administration" at scale, that is relevant and sustained by capable and stable local/national land institutions supported by land information? What are the opportunities to anchor the projects into an existing and functional institutional arrangement?
2. Get buy-in	How to buy-in politicians, decision makers and the society at large to develop an urban land policy that is pro-poor, promotes gender equality, supports environmentally-sustainable development and improves living conditions? Who are interested? Why are they interested? What are their incentives? Are there on-going reforms that can be relied upon?
3. Assess level of governance	How to evaluate the level of governance at local and national level?
4. Analyse institutional capacity	How to analyse the capacity and effectiveness of land administration institutions and spatial planning agencies and determine if they are able to integrate datasets ("incremental development of spatial data infrastructures")?
5. Evaluate human capacity	How to develop human capacity in the development and use of land information. What are the existing skill sets and how to build upon them? What is the staff turnover?

... continued

What to do	Sample questions
6. Unblock institutional bottlenecks	Where are the institutional blockages and enablers? How to improve (or develop, or re-structure) land administration institutions?
7. Focus on essential data	How to determine appropriate, realistic and essential land data sets with feasible accuracies based on user demand and selection of a coverage approach (area based, sporadic or systematic)?
8. Aim of the process	How to convert land management projects into processes, combine short-term results with long-term vision? How to keep to the big picture? How to embed the initiative into past and/or on-going initiatives?
9. Chose appropriate technologies	How to make realistic use of GIS / ICT and internet sources and create systems which give easy access to land information for all stakeholders? Who are the users and beneficiaries and what is their readiness for technology up-take?
10. Find champions	How to identify a lead agency and a national / local champion to drive the development and use of land information?.
11. Link bottom-up with top down approach	How to integrate a top-down approach (land policy, legislation, institutional reform) with a bottom-up approach (improving security of tenure, local development plans)?
12. Find entry point and define road map	Where to start with the development of land information in post-conflict and developing countries (for example, projects or policies)? What are the necessary steps? How long would it take to complete the project? What would be the exit strategy? What would a success look like?

LAND PROBLEMS ADDRESSED

3. LAND PROBLEMS ADDRESSED

The framework document acknowledges that the current regulations, laws and land institutions in developing, transitional, or post-conflict countries are often weak, fragmented and incomplete. There is also not always a mechanism in place to integrate and harmonize the patchwork of rules and initiatives on the development of land information. These challenges can be overcome.

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The framework firstly addresses the situation in which urban land governance and land institutions are limiting factors for the sustainable development and use of urban land information. Secondly, it addresses the involvement of stakeholders, the access and use of land information and the balanced development of essential components of a LIS, such as technology, data, people and institutional management capacity.

The case studies are the basis for this framework and cover the following three main urban land management applications using land information:

1. Land administration (security of tenure, land/property taxation).

The database structure of land administration applications is relatively simple. Similarly, its processing is straightforward and focuses on operational activities. The immediate benefits are the documents that can assist in improving tenure security, the collection of property taxes or simply to have an overview of land records and property information (parcel based land use, property information, and information on the owners and occupants).

In addition to the political nature of land administration (land grabbing, contested ownership of land and so on), the complexity of land information is related to the size of the database, its management and its maintenance. When land information is developed through ad-hoc projects, the challenge is to streamline various initiatives, particularly to get compatibility on approaches, database design and structure, and to use it to build on other initiatives.

2. Spatial planning (regional and urban planning, settlement upgrading and regularization).

For spatial planning, the structure of land information can provide layers (for example, land use, satellite images, road network, contour lines and land cover). Some of the challenges include the quality of the data, its completeness and compatibility. Also, it is important to ensure that the data is up-to-date and, above all,

whether it is used for display and descriptive purposes only or for more analytical applications such as traffic modelling and land-use suitability. Databases can also be very extensive and include administrative boundaries with large socio-economic datasets, infrastructure datasets and historic data (to analyse land-use change for instance). If such datasets for planning applications are developed from scratch for a specific project, the time and costs involved can become a bottleneck and may not support the planning process or urban management. Also, the maintenance of such datasets can be a considerable challenge. The policy of land information for urban management and planning applications should be "less is more"; only additional and specific land information should be collected when it is absolutely essential and it can and will be used.

3. Environmental planning and management.

The challenges of urban land information for environmental planning and management in post-conflict and developing countries are similar to spatial planning. The database can be small and the use of the data simple. Thus, effective applications may include descriptive features, the location of main environmental problems, the identification of areas prone to natural hazards, and mapping of areas with a deficit in basic infrastructure. Nonetheless, environmental modelling is recommended in some circumstances, though this can also be complex with a demand for high quality and a high number of spatial data layers and other datasets. The challenge is to balance the need for information with the timely and cost effective processing of the data and use of the information obtained from data modelling. Above all, the exercise should be demand and result-driven, not data or technology-driven.

Summing up

One of the key messages of this framework is that appropriate land information is the basis for any possible intervention to improve urban land management applications. For this to happen, it is important to build a system on what is available (capacity, data, institutions, systems, and initiatives) and to adopt an incremental approach. The speed at which the level of land information can be improved is related to the capacity and willingness of the political and institutional elite to provide genuine support, to contribute to the establishment of land institutions and to develop and implement land policies and practices. It is essential to involve all relevant stakeholders in the development and use of land formation to guarantee that it is used to improve the position of poor people, marginalized groups and women regarding ownership, tenure and land use. All the above are criteria for good practices to achieve sustainable land information that are discussed below.

LAND INFORMATION: ANALYTICAL FRAMEWORK

4. LAND INFORMATION: ANALYTICAL FRAMEWORK

To make the land information useful for urban land management, a series of UN-Habitat experiences are examined on the basis of what are considered to be key criteria for sustainable urban land information. These five criteria are:

1. Level of land governance;
2. Approach (embedding of land information in stable land institutions);
3. Involvement of stakeholders;
4. Essential components of a Land Information Systems (LIS);
5. Access and use of land information.

The analytical framework revolves around the five main criteria relevant for the development and use of land information. The implementation of the framework will ensure the development of sustainable land information and assist urban land management programmes with adequate, and above all, useful land information. The focus is on cases of underdeveloped or poorly managed land institutions where land information might only serve a single project, or land information cannot be used (or is misused) due to the low level of land governance. In short, these criteria can be used to rapidly identify the critical factors related to the development, use and institutional embedding of land information.

THE LAND INFORMATION ANALYTICAL FRAMEWORK

In this framework, land governance is assessed and classified as:

- Poor: varying from ineffective and inefficient land institutions to political and institutional corruption; or
- Moderate: rules, regulations and capacity is immature but developing; or
- Good: transparent, efficient and well-established procedures and capable land institutions.

In cases of poor governance, a stand-alone project approach is more likely to succeed. This is because the development of land information as a continuous process requires information to be embedded into stable land institutions that may not exist, are not stable or not developed enough to manage the flow of land information.

In cases of moderate level of governance, either a process approach or a project approach with process options is preferable. However, over-optimism about the level of governance, especially by technical staff, should be avoided and it is better to begin simply and not to design grand schemes that will either remain on the drawing table, will fail to fulfil their objectives or are not cost effective.

In cases of good governance, a long-term, comprehensive strategy can be developed. Land information can be developed as a process.

The LIS components for a project approach are simple and non analytical, LIS supporting mostly operational activities. A process approach can expand the LIS functionalities from operational to more strategic applications, however well-established land databases are needed before strategic applications can be developed.

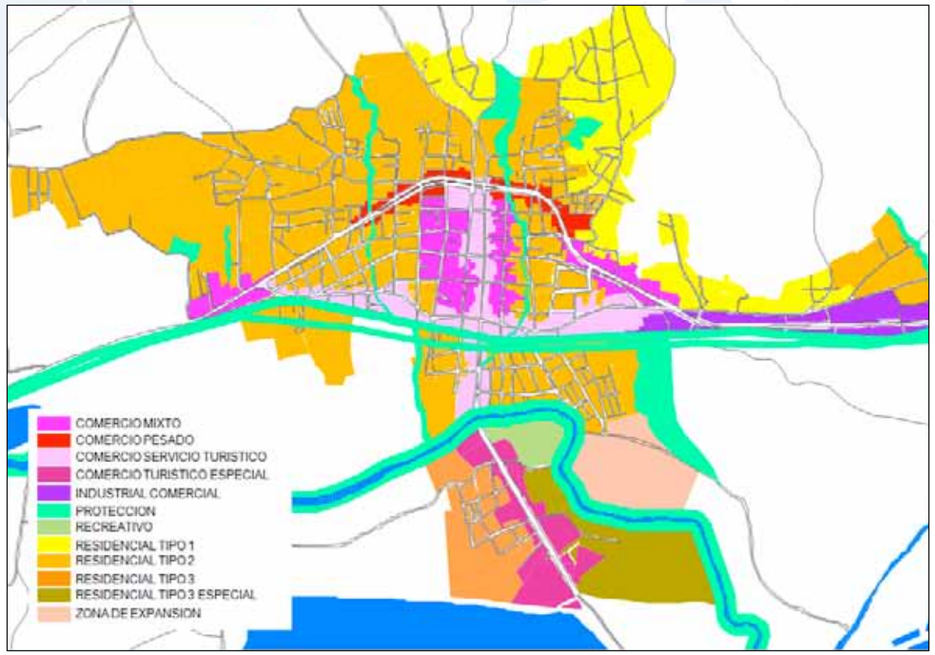

Figure 1: Land-use plan, Paipa, Colombia.

The other two criteria (stakeholder involvement and use & access to land information) also require attention in all the different situations as depicted in figure 3 page 36.

SUMMING UP

The analytical framework addresses the main question: what is the current status of land information? The answer is required to be able to design projects and programmes intended to improve land information within a specific country or city.

Based on the case studies and supported by literature, (see UN-Habitat, 2008 and FAO, 2007) the five criteria of land information emphasize the following:

- Land governance plays a role, especially in the integration and use of land information;
- Poor, but also good, land information can, without specific stakeholder involvement, negatively affect the position of women, marginalized and vulnerable groups, and poor people;
- The development of land information through stand-alone projects can gradually be expanded into more institutionalized processes.

The rationale for selecting the criteria are explained below and illustrated with selected case studies.

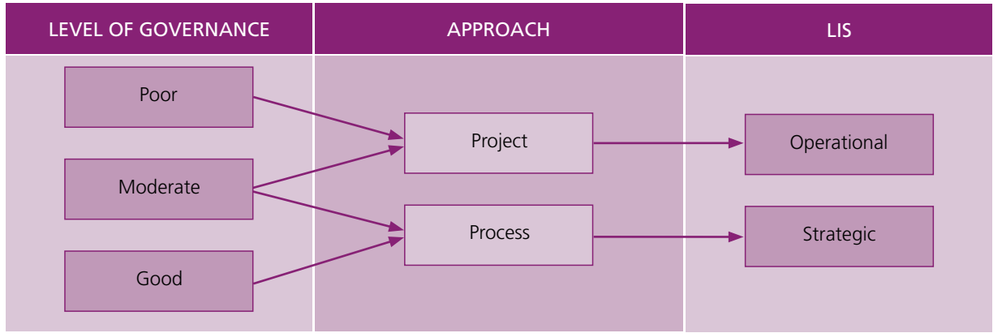

Figure 2: How to start the development of land information

LAND GOVERNANCE AND LAND INFORMATION

Land governance "refers to the processes by which decisions regarding access to, and use of, land are made, the manner in which those decisions are implemented, and the way conflicting interests in land are resolved or reconciled. Land governance is thus a techno-legal, procedural and political exercise" (UNECA, 2009:40). Good governance means "that government is well managed, inclusive and results in desirable outcomes. The principles of good governance can be made operational through equity, efficiency, transparency and accountability, sustainability, subsidiarity, civic engagement and security" (FAO, 2007:6).

> *The realities of weak or ineffective governance include corruption, weak institutions, lack of horizontal and vertical coordination and integration among governmental agencies, limitations on the credit market, and low efficiency of land administration systems.*

Many countries, however, have poor land governance mainly due to incompetent and ineffective land institutions, a situation that might be very convenient for the rich and powerful who benefit from the lack of transparency in urban land management.

> *Poor land governance is primarily caused by lack of the basic conditions, or a weak "foundation".*

If land governance is weak, urban development processes can only have a limited impact; the level of land information should be limited and related to what an urban development project can achieve. The realities of weak or ineffective governance include corruption, weak institutions, lack of horizontal and vertical coordination and integration among governmental agencies, limitations on the credit market, and low efficiency of land administration systems. These can block beneficial effects of a LIS from materializing (adapted from Deininger and Feder, 2008).

Poor land governance is primarily caused by lack of the basic conditions, or a weak "foundation". This foundation consists of a policy framework, a legal framework, institutional capacity, primary geodetic network, education and training, funding and finance and stakeholder engagement (Burns, 2007)

HOW TO ASSESS THE LEVEL OF LAND GOVERNANCE?

Three aspects need to be taken into account to assess whether a country has a bad, moderate or good level of land governance.

- Corruption: Violations of transparency and non-functional checks and balances result in limited political and institutional willingness to improve land information. Corruption is an outcome of poor governance. The corruption perceptions index www.transparency.org could be an indicator but contacts with local media, lawyers, scientists, politicians, staff in land institutions, embassies and the donor community can also provide details about the levels of land-related corruption.

- Policy and legal framework, government structure: For good land governance there should be a policy and legal framework in place. An urban land policy and corresponding legislation regarding land administration should exist and be operational. The policy and laws should cover aspects such as land ownership, property and land rights, development of land, land taxes, transfers, formal and informal land tenure and inheritance. A decentralized government structure, in which local governments have a certain level of autonomy in decision-making over land management, is favoured over a centralized government structure. Local governments are more directly in touch with communities and tend to better understand land-related problems and how to deal with them.

Surveys of key staff of ministries and websites could give a quick indication of what has been done, what is on-going and what remains to be done. Such surveys also reveal the main bottlenecks regarding land issues, and how and when these can be expected to be improved. Procedures (including timeframes and costs) on how to legally transfer or develop land can be highly illustrative of the practice of land governance and how it works or does not work in reality.

Surveys of key staff of ministries and websites could give a quick indication of what has been done, what is on-going and what remains to be done. Such surveys also reveal the main bottlenecks regarding land issues, and how and when these can be expected to be improved. Procedures (including timeframes and costs) on how to legally transfer or develop land can be highly illustrative of the practice of land governance and how it works or does not work in reality.

- Land-related dispute resolution mechanism: Land disputes can be the result of historically / politically based property allocations that have never been resolved. Claims can be related to public and private lands, or to the rights of use and / or ownership of land and its resources. Many legal frameworks, both formal and informal / customary practices governing land, tenure and its resources, inconsistency in interpretation and a lack of enforcement mechanisms could result in land disputes. A feasible and practical dispute-resolution mechanism must acknowledge the value of community-based knowledge and should be accessible for all groups in society, especially marginalized groups and women. Furthermore, any approach to sustainable dispute resolution must address the historical and underlying grievances associated with how land was acquired. Analysis of court cases and interviews or surveys with local lawyers specializing in land disputes can help to get this information. The availability of land tribunals and community-based adjudication processes, for example, could also help to determine if effective land-related dispute mechanisms are in place.

The following three examples of land information development under different levels of governance shows the relation between level of governance and land information. In Colombia, the land information applied to urban planning is ambitious but, with a moderate level of land governance, the process / project approach and strategic use of land information is in harmony. In a country or situation with a poor level of governance, the project approach often conflicts with the strategic use of a LIS, thus land information is disconnected from its application.

The following three examples of land information development under different levels of governance shows the relation between level of governance and land information.

In post-conflict situations with a poor level of governance, a simple operational use of a LIS and project approach is realistic and cost-effective. However, whether this simple project approach can be maintained and expanded to other applications may be challenging.

GOVERNANCE: SPATIAL PLANNING, PAIPA, COLOMBIA.

The Government of Colombia has created a variety of spatial planning and urban development laws in recent decades and municipalities now have to develop spatial development plans. The requirements for local authorities on the content and process of the plans are specified in great detail. Colombia has well-established institutions capable of providing specific datasets (mapping, environment, census) and technical support to the municipalities. The governmental structure of Colombia is considerably decentralized and there is a culture of public participation.

LESSONS LEARNT

Development and implementation of the Spatial Plan of Paipa:

- Legislation and planning procedures are important;
- Critical mass of GIS experts and specialized land institutions producing core dataset are making the development of spatial plans feasible;
- Spatial plan development is outsourced, local institutional embedding is low;
- Spatial plan is data heavy and technically complex;
- Participation is low due to the complexity of the planning process;
- Implementation and finance unclear of proposed projects;
- Plan updating will have to be outsourced again.

Due to decentralization, local governments have much to say in the development of their areas but small municipalities such as Paipa are particularly unable to develop plans and maintain the related GIS datasets due to insufficient capable municipal staff.

GOVERNANCE: SPATIAL PLANNING AND GIS DATABASE DEVELOPMENT, LIBYA.

Developed in the 1980s, the spatial development plans of Libya required revision and updating. The Government of Libya, through its Urban Planning Agency, developed a very large and ambitious planning project (Third Generation Planning Project – 3GPP). This project was for new development plans at regional, sub-regional and local levels using advanced GIS and remote sensing technology within a four year period (2005-2008). All spatial data was to be developed from scratch and in GIS format. By mid-2010 the project was still not finished and the GIS data sets not completed.

LESSONS LEARNT

The following reasons and challenges may explain the delay in implementing, scaling up and sustaining the 3GPP project:

- Governance structure of Libya is highly centralized and requires institutional arrangements conducive to support transparency;
- Spatial planning and land information could be better integrated through, for instance, improved interinstitutional co-operation and limited, ad-hoc and uncoordinated interventions;
- Timing and sequencing could be adjusted with the capacity;
- Spatial planning is based on an out-dated blue print approach and conversion to a modern continuous planning process requires a shift in thinking and thus time;
- Management of the project lacks technical, management and political support;
- Staff capabilities, incentives and motivation could be improved;
- GIS specifications were too ambitious given the governance and institutional capacity. While ample funding was available, which facilitated the procurement of equipment, it takes time, skills and management to collect and store data in a geo-database as well as using data to support spatial planning;

Large budgets and ambition cannot overcome the limitations of weak governance; it takes time to develop institutions, and project ambitions need to be in line with the political and institutional realities and scope for change and development.

With the overthrow of the Government in 2011 it became apparent that land institutions, planning agencies, local governments and others were deliberately kept weak as part of the survival strategies of the leadership.

04

GOVERNANCE: PROPERTY TAXATION HARGEISA, SOMALILAND.

The capital of Somaliland faces multiple land-related problems, such as unclear land rights and ownership records, unplanned areas, informal areas inhabited by internally displaced persons, weak local and national institutions, and limited and poorly-maintained land records. UN-Habitat was asked to support the urban development of Hargeisa. One of the objectives was to increase municipal revenues through property taxation. Property taxation in general is based on an inventory of properties, preferably a large-scale map identifying all properties and related data on ownership/occupancy and physical data (such as land and parcel size, use of building, and building material). In a data-poor environment, a property inventory is a challenge and the method used (satellite imaging and attribute data collected by field surveys stored into a GIS) proved to be fast and cost-effective. Property taxes increased from USD 169,000 in 2005 to USD 589,000 in 2008.

LESSONS LEARNT

- Resist the temptation to expand the project objectives to urban land management (for example land tenure) instead of revenue generation only;
- Political support, cooperation with municipal council and support to local district offices are essential factors for the project's success;
- The property tax system is a relatively simple concept and the project was based on a locally-known structure;
- The stand-alone project, and keep-it-simple-approach with quick, measurable results was a success factor;
- Avoid being over-ambitious; for example the introduction of differential tax rates was not accepted;

LAND INFORMATION MANAGEMENT: A PROJECT OR A PROCESS?

While many stand-alone projects related to land information (security of tenure, land use planning, land taxation or environmental planning) with specific (local, national and donor) funding have been successfully implemented, the magnitude of the problem of rapid urbanization, urban poverty and land conflicts require solutions at scale and projects need to be expanded, institutionalized and converted into continuous processes. It is important to start small, but with the big picture in mind. For example, there is a benefit to strategically collecting information (not haphazardly), and to collecting data for a specific purpose while thinking about keeping data up-to-date and how it will be disseminated (Nkwae, 2008). Implementing such a strategy is not always easy. In fact, the situation in many countries might be that this cannot be easily realized; it may result in much talking and little action on the ground. The needs of the government and pressure from citizens, communities and donors requires that projects should be developed and implemented with full awareness of the risks and challenges associated with them and their environment. The shift from projects to programmes requires "a common goal, long-term commitment by the parties, a strong local ownership, wide stakeholder participation and good local management capacity" (FAO, 2007:38). The key questions are: what to do when those conditions are absent and where to start now? The following checklist can assist in finding answers.

Checklist: Sample questions to clarify where and when to start an urban land information system:

- Is land information a project or an institutionally-embedded process and part of a corporate database?
- What are the main driving forces behind the development of land information? Donor funded projects should only function as a catalysts and should be transferred and embedded as soon as possible within the local political, legal, institutional context and based on capabilities (staff, funding).
- What is the spatial coverage of the LIS? For example, is there a systematic or sporadic approach to land ownership recording?
- Is land information scalable and compatible? By comparing similar (scale, coverage) geo-datasets from different agencies or projects the possibility of combining and expanding different land data bases can be analysed.

PROJECT OR PROCESS APPROACH: MASTER PLANNING, BLANTYRE, MALAWI.

Applications: The aims of the 2000 Blantyre Master Plan included addressing the spatial development challenges such as unplanned development, lack of infrastructure, lack of employment and weak institutions. The previous structure plan for the city was developed in the 1970s and was outdated. The planning process included the development of new thematic maps and a final, proposed land-use map for the city.

LESSONS LEARNT

Legal, political and institutional framework: The strategic action plan was fully supported by the Blantyre Municipal Council and the Urban Planning Department. It is not clear, however, whether the data collection effort and the amount of work it took to institutionalize the land information was valued at the political level. Regular data updates are not foreseen and land data might become quickly outdated.
Scale and time frame: The development of the Blantyre Master Plan took many years. Following up on the implementation of the detailed plans at district level and funding/construction of the proposed projects will take much more time than initially anticipated.

Funding: The development of the land information was supported by national and international funding.

Expertise: An international consultant facilitated the development of the reports and GIS maps. It is unclear if the Municipal Council of Blantyre will be able to maintain the GIS database.

This example shows that an effort was made to develop a large number of GIS datasets with the intention of supporting strategic planning decisions. However, it seems that most GIS datasets have fulfilled more descriptive purposes. It is unclear how the final planning maps were derived. In short, the development of the master plan database of Blantyre was a major investment, a valuable experience but with ambitions that might be beyond the institutional capacities to maintain the land information.

The use of land information for urban land management is politically sensitive and technically achievable. Land tenure, land conflicts, land use and development are directly related to people owning (or claiming ownership), accessing and occupying land. Decisions about land use and land ownership directly affect people's living environments. It is, therefore, important that people are involved in the land data collection process and also in decisions about land development (for example land-use zoning, settlement regularization and improvement, land taxes, and land dispute resolution), access to land information and the responsible use of data and information.

Participation by citizens is important to develop consensus building and to make a land management project a people's process (UN-Habitat, 2010). It is also crucial to identify and involve other stakeholders, such as local authorities, other tiers of government, and industry and private investors (UNECE, 2008).

SELECTED KEY QUESTIONS TO CLARIFY PARTICIPATION INCLUDE:

Are key stakeholders genuinely engaged in the process of land information development (what is collected)?

Who is involved and at what level (decision-making powers)?

Is land information gender sensitive (gender disaggregated) (UN-Habitat, 2009)?

Is land information pro-poor (disaggregated by income, grassroots and vulnerable groups, etc) (UN-Habitat, 2009a)?

Does land information identify all forms of land tenure arrangements?

Is the land information widely shared and accessible? An analysis of the involvement of stakeholders can be obtained from local media, interviews with community groups or ordinary citizens.

ENGAGEMENT OF STAKEHOLDERS: LAND ADJUDICATION FOR HOUSING RECONSTRUCTION, ACEH, INDONESIA.

National government: The Indonesian Government created the Rehabilitation and Reconstruction Agency as a specialized agency to manage and coordinate the massive international support after the 2004 tsunami.

Specialised land agencies: BPN (National Land Administration) was not fully equipped to handle the large number of land adjudication cases rapidly enough using conventional approaches. To overcome this, the Community Driven Adjudication (CDA) approach supplemented the formal system (BPN).

Community: The participants and beneficiaries of the CDA process are the previous land owners and users recovering the rights of their land. The beneficiaries' claims are verified by the local leaders and, if consensus is reached, the land claim (statement letter) is forwarded to the authorities (BPN).

Women: Many women became widows and children became orphans because of the tsunami. These vulnerable groups received special protection to prevent their inheritance rights being violated.

Marginal groups: Prior to the tsunami, Aceh was already a conflict-prone area (Free Aceh Movement) with severe poverty. Most of the beneficiaries of the CDA process were low-income groups.

Donor: The disaster of December 2004 led to large amounts of external funding being available.

World Bank: The Community Driven Land Adjudication process is part of the Reconstruction of the Aceh Land Administration System (RALAS), a World Bank-supported project. UN-Habitat focused on the reconstruction of housing.

This example shows that the Government realized the crucial role of stakeholder involvement, possibly due to the specific circumstances surrounding the tsunami. But natural hazards and specific projects can act as a catalyst to change the perception of land experts, politicians and other interest groups about community involvement. They can come to see community participation not only as an obligation but also as a key factor for the success of urban land management projects and programmes.

ESSENTIAL COMPONENTS OF LAND INFORMATION SYSTEMS (LIS)

Land information systems are not only a geo-database but are a combination of technology, data, people and institutional management capacity. To create a LIS that is a useful way to support urban land management in post-conflict and developing countries, all these components should be in place, they should have equal attention and be developed at the same level. The fascination with and initial emphasis of LIS on technology (hardware and software) has gradually been replaced with a focus on data. Web-based data sources, and especially the availability of high and very-high resolution satellite images, are important as a spatial data source for urban land management. Many exciting LIS and GIS platforms now exist to present land information that could assist decision-making on urban land management. For example, Google Earth is an effective tool to organize and display land information, but the information has to be created and professionally produced to be displayed / visualized this way.

A land institution needs adequate levels of human resources to develop and operate a LIS. People should have the right mix of qualifications, for example some IT and administrative support staff, data operators, and staff with specific skills on surveying, database design, modelling, web-design, cartography and remote sensing. Also, the number of staff, their salaries (as part of motivation, incentives and dedication) and a positive and challenging work environment (training and career opportunities) are important for a functional LIS.

A LIS needs a management structure with people who have technical and management skills and the ability to connect an institutional LIS with other spatial data sets developed and used in the country or city. Intra- as well as inter-institutional relations at management and operational levels are crucial for a LIS to move beyond the isolated project phase to a wider corporate LIS and a local or national spatial data infrastructure.

A LIS needs investment (staff, equipment, data, office building etc.) and this should be related to the benefits and services the LIS generates. A clear and long-term agreement on how to finance a LIS is essential to define the scope and ambitions.

1. Data are not a means, but should be processed through data models to support land administration and urban development. Lack of accurate and up-to-date data is a critical bottleneck. Also, data collected that is not used or cannot be used is a waste of resources. The content, quality, accuracy, scale, compatibility, data processing models and use of the data can be reviewed by visiting key land institutions and municipalities. Such a review should determine the quality of geo-data, whether the data is well structured and up-to-date and how it is used.

2. Technology consists of hardware, software and networks, and support technology (UPS, air-conditioning, back-up storage facilities). Over-investment in hardware and software is common; many software functions and equipment are not used due to, for example, a lack of skilled staff and / or lack of data.

EXAMPLES OF GUIDING QUESTIONS TO BE ASKED DURING VISITS TO LAND INSTITUTIONS ARE:

a. Are essential infrastructure and equipment (software, computers and other hardware) available?

b. Is the power source (electricity) stable and secured?

c. Is access to the internet secure?

d. How can the technology be used to the optimum?

e. What equipment is currently being used?

f. What software functionalities are used and to what extent?

3. People are a central pre-requisite for a successful LIS in post-conflict and developing countries. The main concern is whether there are enough, capable and dedicated staff with adequate skills such as ICT support, database design experts, GIS operators, programmers, GIS analysts. Salary, career development, training opportunities should also be attractive to avoid rapid staff turnover and loss of public sector staff to the private sector. Information can be obtained to request a list of all staff with qualifications, experience and job descriptions.

4. Organization: Is the internal management and inter-institutional cooperation supportive, stable and capable of developing and exchanging land information? Land information institutions need to be free from direct and indirect political interventions, for example the appointment of staff or manipulation of land information. Weak land institutions or the absence of functional institutions such as mapping agencies, cadastre and land registries means that in many developing countries spatial data users have to produce much of the land information themselves on an-ad-hoc project basis and with access limited to a few people.

GUIDING QUESTIONS TO CHECK THE READINESS OF THE INSTITUTIONS:

a. What are the technical and management qualifications, experience and gender of key managers in land institutions?

b. What are the institution's vision, mandate, work plan and organizational structure regarding development, expansion, data standards and data exchange of land information?

c. What are the past, on-going and planned LIS projects / initiatives?

5. Funding: The development, maintenance and use of land information requires funding for staff, equipment and supplies. The funding should preferably be secured beyond the life span of a (donor-sponsored) project. Land information can generate income by charging directly or indirectly for services or products provided or derived. Limited funding will influence the scope of a LIS. In some instances, a land information project can be tailored or scaled to fit the level of funding. In others, it might be better to postpone the development of a LIS if funds are too low to obtain results.

COMPONENTS OF A LIS: SETTLEMENT REGULARIZATION, KANDAHAR, AFGHANISTAN

Technology. The project made use of ArcGIS (ArcView) as the GIS software and Microsoft Access as the database software.
Data. Through cooperation with other projects, and the use of a satellite imaging with very-high resolution, GIS files were obtained and used as a basis to create a parcel map for the informal areas and some of the formal areas of Kandahar. A coding system was developed (unique cadastral identifier) to facilitate location and link to attribute data. Paper sheets and measurement tapes were used to collect field data (ownership/occupancy and property characteristics) and data were digitized in the office.
People. The property database was based on the structure of the Ministry of Interior and was designed by local and international staff of UN-Habitat and the municipality. One week GIS training and on-the-job assistance was provided and this was sufficient for database development and basic operations, a so-called learning-by-doing approach. Operational GIS skills are limited to only a few people, which makes the process still fragile regarding staff capacity.
Management. The project depended heavily on outside support (financial and to a certain extent technical) and, although there is strong local and national political support, it has to be seen how the project can be fully managed and maintained by the municipality.
Funding. The funding for the project was provided by the Canadian International Development Agency as part of a larger project. The simple and pragmatic approach makes the process relatively inexpensive (survey costs around USD 4 per parcel), fast (1,000 properties per month surveyed and registered) and only a small portion of the property taxes generated are needed to maintain the process (average USD 18 per parcel annually).

This example shows that despite the low level of governance and the ongoing conflict, land information can be developed and used for specific purposes. The project developed a common interest and ensured that the different parties (communities, local and central government, donor, implementing partner) worked together. The results are that communities obtained better tenure security, local government increased revenues, and trust was enhanced between communities and local/central governments. Land information is considered to be an essential part of peace building efforts.

By June 2011, 28,000 properties had been registered in Kandahar and the project expanded to Lashkar Gah where over 10,000 properties have already been registered. Other cities, such as Herat, are implementing similar projects.

Land data should be easily available for all parties involved in the spatial development of a country, city or neighbourhood, while preserving their privacy. Although lack of data is often cited as one of the main bottlenecks for urban development projects, in many cases it is also the problematic access to data. In some instances, land data exist in some form but these are often poorly structured, they lack metadata, they have incompatible formats and are not readily accessible to parties besides the producers themselves. The reasons for this can be technical, personal (information is power and has value and will be made available for favours or money) or institutional (no incentives to make data available). The mushrooming of geo-datasets in CAD and GIS formats to support a variety of ad-hoc projects is a common phenomenon in many countries. But the different geo-datasets lack a sound database structure, have no institutional embedding in stable and recognized land institutions or policies regarding distribution (including sale) and access to land data might not be possible. Having data on land is no guarantee of positive interventions in informal development, urban sprawl, slums, gender discrimination or land tenure and inheritance and property rights, but it is a first step.

SAMPLE QUESTIONS TO GUIDE THE EVALUATION OF LAND INFORMATION ACCESS:

a. What is the extent of data used? (Is land data fully or partially used?)

b. How is land information used (analysis, descriptive or operational use)?

c. Is land information easily accessible to the public and staff in public and private institutions?

d. Is land information used to improve the living conditions of woman and lower-income groups?

LAND INFORMATION FOR URBAN MANAGEMENT: ELEMENTS OF GOOD PRACTICE

5. LAND INFORMATION FOR URBAN MANAGEMENT: ELEMENTS OF GOOD PRACTICE

There are several considerations for the development of an effective and sustainable land information system to support urban land management. Below are examples of important questions and pre-requisites to clarify before embarking on a LIS.

- How to analyse the relationship between land information and the use of land information?

- How to be realistic but ambitious while addressing aspects such as:
  - What is the level of land governance?
  - What is the status of institutional and human capacity?
  - What is the cost-benefit outlook?
  - Where to start?
  - What will be the scope of the project?

- How to think big (information is a process) and start small (information as a project)?

- How to address all essential components of a land information systems (technology, data, staff, management and funding) at the same time and at the same level?

- How to involve stakeholders and beneficiaries?

- How to strengthen the position of marginalized groups (low-income, women, ethnic minorities, slum dwellers)?

- How to include and combine top-down (land policy, legislation, institutional capacity) and bottom-up activities (land management projects such as settlement regularization, spatial planning, settlement upgrading, increasing tenure security, raising property tax)?

HOW TO DESIGN AND DEVELOP LAND INFORMATION: A FIVE STEP-BY-STEP PROCESS

The framework is intended to be used by people involved in the development of projects and programmes on land management and urban development and those looking for the most efficient, effective and sustainable approach of the development of land information to support urban land management.

One of the major challenges is to evaluate how projects have achieved short-term results while their activities can contribute to a gradual improvement of the quantity and quality of land information appropriate for a certain country, and whether these are fully embedded in local

and national institutions. In post-conflict and developing countries, the absence of good governance might mean that holistic and integrated land information approaches can only be implemented through an incremental and bottom-up project approach.

Successful projects (stand-alone and maybe for a limited period only) will result in urgently-required products in the short-term. These projects might lack the proper foundation or framework (geodetic network, policies, laws and land institutions) to be able to expand to a more integrated development of land information. In such cases, one challenge is to combine, expand and institutionalize the projects and gradually improve the quality and robustness of the products with improved "top-down" activities. Another challenge is to convert products into permanent processes and delivery of services. Below are five steps to ensure sustainability of a land information project for urban development.

Step 1: Determine the level of land governance.

If the level of land governance is weak and land institutions are poorly developed, it is likely that the patience and capability of local counterparts (and donors) is too limited to implement a major institutional reform programme, or to develop an ambitious, systematic approach for land recording and the development of a comprehensive land database. In such a situation, small projects are recommended to address urgent needs, for example land tenure regularization (Kandahar) or property taxation (Hargeisa).

If the level of land governance is moderate and the internal organization of land institutions are in place (staff, data), projects can be initiated to increase data quality, initiate data exchange between institutions and support the national level with the development of land policies.

Under conditions of good land governance, specialized land institutions (for core and foundation data) can be developed and systematic coverage of land registration can be started. If enough land data and institutional and human capacity is available, the application of data models to support urban planning and urban land management can be considered.

POOR GOVERNANCE	PROJECT APPROACH
MODERATE LEVEL OF GOVERNANCE	PROJECT APPROACH WITH PROCESS OPTIONS
GOOD GOVERNANCE	PROCESS APPROACH

Step 2: Project or long-term process approach.

Projects are intended to respond to specific needs, to operate on a stand-alone basis. Duplication of (incompatible) land information is, in these circumstances, the only viable option to support urban land management practices. It is common and unavoidable for many datasets to digitize the same features several times before data duplication can be avoided effectively.

A process approach is feasible with well-established land institutions and a supportive government. But processes also need to be divided into tangible outputs; a process is an integration of different projects operating at the project and policy level.

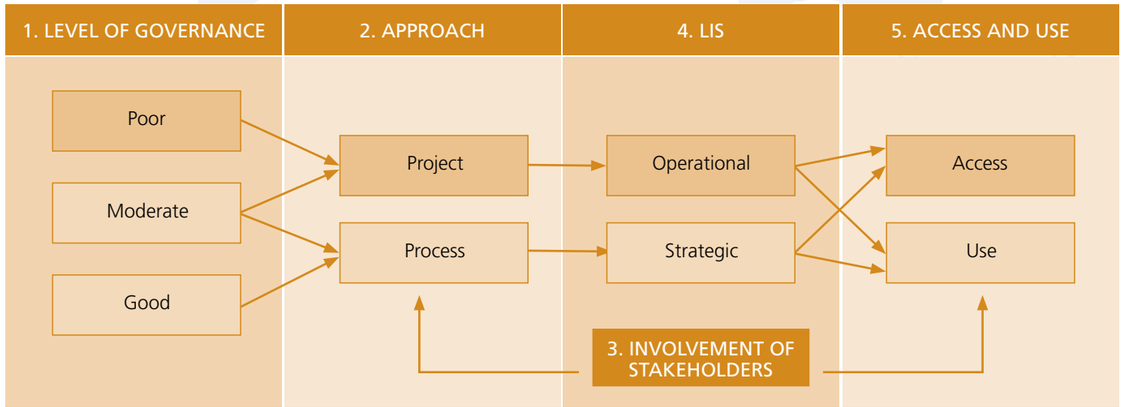

Figure 3: Framework for assessing land information

A GOOD practice of developing land information is: Poor governance - project approach - involvement of stakeholders - operational LIS – access and use of land information.

A BAD practice of developing land information is: Poor governance – process approach – strategic LIS (stakeholders not involved, access and use of land information are difficult). Equally ineffective is that with a poor level of governance, a process approach is developed for operational land administration activities. In short, under poor or unstable governance a process approach is too ambitious. A project approach can be tried linking different project initiatives, learning from each other and creating the conditions for land governance to be improved from "poor" to "moderate".

Step 3: Genuine involvement of stakeholders, pro-poor orientation and gender sensitivity.

Whether a project or process approach is used for the development of land information, involvement of stakeholders are needed to make sure that land information is developed in such a way that it can support marginalized groups. Land information is not considered to be a neutral exercise (UN-Habitat, 2010); different groups like to collect different land information. Also, stakeholder involvement is needed to support the use of land information for planning, settlement upgrading and land tenure regularization, for example. Especially in situations with weak governance, post-conflict situations, underdeveloped laws and regulations and poor practices regarding land, vulnerable inhabitants in informal settlements and lower-income groups in general need to be protected through their direct involvement.

The establishment of community groups or councils with decision-making power can be an effective method to get the effective involvement of communities (either mixed gender or separated). Local and / or religious leaders who are accepted by the communities can also play an important role in the development and use of land information.

Step 4: Balancing the five essential components of land information systems.

Data and data models: ensure the right mix of quantity, quality and structure of datasets.
The main message is "keep it simple", make use of satellite images for mapping, focus on quality of attribute data and avoid unrealistically high standards, especially regarding spatial data. Land data should be based on need, demand and cost-effectiveness, and not only on technical and funding possibilities. It is important to use operational functions first. Strategic functions can be applied later when ample experience with operational functions that are fully embedded in land institutions should be available.

Technology: consider equally the capacity of hardware and software and networks. In many cases, start with low-end and open source software before migrating to higher levels of software, and only if the need for additional functionalities can be proved. Local networks and internet access can be more of a bottleneck than computers.

People: the cornerstone of the LIS.
Obtain the right mix of required qualifications (operational level, analytical level, technical managers). Especially in the public sector, motivation (salary, positive and challenging working environment, training and career opportunities, on- and-off-the-job capacity building programmes) are important to ensure staff are committed and that there is a low turnover. The main bottleneck is the lack of experienced staff for database design, development of planning models and technical management.

Management with vision and wisdom.

"Management" consists of the inter-institutional arrangements, the legal framework, political support, institutional stability and working culture; it is closely related to the wider concept of governance. Unfortunately, the life span of many managers and politicians is short, and agendas are filled with day-to-day events. Politicians have their own circle of supporters who are appointed in public institutions and in this way political instability is expanded to institutional instability.

If "management" is considered to be weak, a pragmatic, although organized, step-by-step process consisting of small projects might be a more viable approach.

Funding. Investment in land information should be justified and recovered through improved services or the sale of products (database, maps). Consider adding the costing of LIS projects to the national budget. In case there is no measurable benefit due to a lack of good-quality data, lack of manpower, weak internal organizational structure, or other factors, then minor investment or no LIS investments should be made. The development, and use, of a LIS should preferably be a continuous process and secured funding will contribute to this continuity.

Step 5: Enable wide access and use of land information.

If the previous steps have been taken it still does not mean a great deal if the information is not accessible or, worse, not used. It is essential that mechanisms are developed (websites, metadata) to inform other developers of land information where to find what type of land information (coordination platforms) to stimulate access to land information. The use of land information can be surprisingly different from what developers of land information had in mind when they developed it. If land information should become available in a user-friendly format, especially spatial data and satellite images, it can stimulate additional and new applications.

06

DO´S AND DON´TS

Do's and Don'ts of development and use of land information for urban land management in post-conflict and developing countries

	1. Land Governance	2. Project/process approach	3. Stakeholders	4. LIS elements	5. Access and use of land information
Do's	Analyse the level of (land) governance	Accept that a stand-alone project approach is in certain situations the only viable option	Promote the meaningful engagement of all stakeholders	Balanced improvement of data, people, technology and management	Accept that many analytical functions of a GIS are not used
	Analyse the legal framework and policies regarding land information	Focus on short-term results (quick wins) and develop a long-term vision and incremental implementation approach	Emphasize the inclusion and empowerment of woman and vulnerable groups through LIS	Convince managers of land institutions and politicians of LIS benefits	Use land information to benefit women and the poor
	Connect top-down with bottom-up activities	Accept outside technical and funding support on a temporal basis	Include stakeholders in participation and decision making on land information	Assess staff capacity and motivation; develop phased capacity building	Avoid the collection of land information which will not be used or will only partially be used
	Coordinate between different public and other land information developers	Think big, but start small; keep it simple; assess how small interventions fit into a larger picture	Promote the effective sharing and exchange of land information within and between land institutions	Learning by doing and on-the-job support	Promote the access to land information through publications and informing community leaders
Don'ts	Assume that (bad/weak) governance are not affecting LIS projects	Design and try to implement an integrated land information approach when conditions are not ready	Develop inter-institutional development of LIS if land institutions are weak	Make over -investment in hard and software	Assume that GIS analysis can support spatial planning without clear need and capacity
	Underestimate the time it takes to improve land governance	Overestimate the management capability, technical capacity and stability of land institutions.	Led international stakeholders become too dominant and leading the development of LIS	Collect data without clear and agreed use of the Land Information	Underestimate the sensitivity of land information and the need for transparency and access to land data

07 CONCLUSIONS AND WAY FORWARD

The main conclusion is that the development of land information cannot be seen in isolation of the broader picture of land governance in post-conflict and developing countries. Technical people, donors, or enthusiastic local people like "to do something" and start collecting data and creating databases. While technology is increasingly powerful and software is attractive to use, the challenge is to keep land information simple to avoid a situation where it is developed and used as an academic and stand-alone exercise. Ultimately, successful land information systems for urban land management applications in developing and post-conflict countries require balancing the five essential components of a land information system: data, technology, people, management and funding.

Emerging from the framework are examples of essential aspects for consideration to effectively manage land information for sustainable urban development. For urban land information users, developers and stakeholders, the following key points are worth noting:

1. Be realistic about what can be achieved in a certain time period. The level of governance (either bad or weak) might be a critical constraint, especially regarding the use of land information.
2. The development of land information is a time-consuming process and should be kept as simple as possible. Land information can be expanded if the need arises.
3. Avoid the technology-orientation of LIS. Technology (hardware and software) is not usually a bottleneck in the development of LIS. Technological solutions often exist, but they ought to be matched with the readiness of skills, funding, institutions and management.
4. Local leadership and the involvement of stakeholders is an essential condition for a successful LIS. There should be incentives and clear benefits for all stakeholders to motivate them to participate and get involved.
5. The management of land institutions in developing and using land information can be a critical bottleneck and there is a need to convince politicians (national and local) and managers of the benefits of land information. There is also a need to convince decision-makers to accept (technical) support for the development and use of land information.
6. Accept long time frames, the phased development of land information with clear short-term achievements, options to adjust to change, and unforeseen circumstances. It would be beneficial to break land information projects into quick-wins and short term and tangible results for urban managers and other stakeholders. Urban land information project managers have to be on the "look out" for opportunities to institutionalize the initiative and add value to on-going initiatives or reforms.
7. Accept situations in which a "muddling through" and stand-alone project approach could be the only viable option to develop land information in an urban setting. Be willing to accept that, especially in post-conflict countries, land information may not be realistically and sustainably developed or applied unless some basic conditions are in place

REFERENCES

Burns, T. (2007). Land Administration Reform, Indicators of Success, Future Challenges. Agriculture and Rural Development Discussion Paper 37, World Bank, Washington.

Dale, P. & McLaughlin, J. (1999). Land Administration. Oxford University Press.

Deininger, K. and Feder, G. (2008). Land Registration, Economic Development and Poverty Reduction. Washington D.C.: World Bank.

Deininger, K. Selod, H. and Burns, A. (2011). The Land Governance Assessment Framework. Washington D.C.: World Bank.

Dercon, B. and Kusumawijaya, M. (2007). Two Years of Settlement Recovery in Aceh and Nias, What should the planners have learned? 43rd ISOCARP Congress.

FAO. (2007). Good Governance in Land Tenure and Administration. Rome.

FIG / UN-Habitat. (2004). Land Information Management for Sustainable Development of Cities: Best practices guidelines in city-wide land information management.

Nkwae, B. (2008). Guides for Implementing A Land Information Management Strategy. Nairobi: UN-Habitat, GLTN.

Payne, G. (1997). Urban Land Tenure and Property Rights in Developing Countries; A review. Intermediate Technology Publications. London: ODA.

Tomlinson, R. (2003). Thinking about GIS: Geographic Information System Planning for Managers. Redlands, California: ESRI Press.

UNECA (2009). Framework and Guidelines on Land Policy in Africa. Addis Ababa, Ethiopia: AUC-UNECA-AfDB.

UNECE (2008). Spatial Planning; Key instrument for development and effective governance, with special reference to countries in transition. Geneva.

UN-Habitat (2003). Handbook On Best Practices, Security of Tenure and Access to Land, Implementation of the Habitat Agenda. Nairobi.

UN-Habitat (2006). Better Information for Better Cities; The case of Hargeisa, Municipal Revenue Generation through Property Taxation. The UN-Habitat Approach. Nairobi.

UN-Habitat (2007). How to Develop a Pro-poor Land policy; Process, Guide and Lessons. Nairobi.

UN-Habitat (2008). Secure Land Rights for All. Nairobi: GLTN.

UN-Habitat (2009). Gender Evaluation Criteria for Large-Scale Land Tools. Nairobi: GLTN.

UN-Habitat (2009a). Not About Us Without Us: Working with grassroots organizations in the land field. Nairobi: GLTN.

UN-Habitat (2010). Count me in. Surveying for tenure security and urban land management. Nairobi: GLTN.

UN-Habitat (2012). Managing Urban Land Information: Learning from emergent practices. Nairobi: GLTN.

WEBSITES

www.citiesalliance.org
www.cities-localgovernments.org
www.fao.org
www.fig.net
www.gltn.net
www.gpa.org.uk
www.igca.gov.co
www.inspire-geoportal.eu/
www.isocarp.org
www.itc.nl
www.landequity.com.au
www.phil-lamp.org
www.gsdi.org
www.terrainstitute.org
www.transparency.org
www.unhabitat.org
www.worldbank.org/landpolicy

ABOUT GLTN

THE GLOBAL LAND TOOL NETWORK

The main objective of the Global Land Tool Network (GLTN) is to contribute to poverty alleviation and the Millennium Development Goals through land reform, improved land management and security of tenure.

The Network has developed a global land partnership. Its members include international civil society organizations, international finance institutions, international research and training institutions, donors and professional bodies. It aims to take a more holistic approach to land issues and improve global land coordination in various ways. These include the establishment of a continuum of land rights, rather than a narrow focus on individual land titling, the improvement and development of pro-poor land management, as well as land tenure tools. The new approach also entails unblocking existing initiatives, helping strengthen existing land networks, assisting in the development of affordable gendered land tools useful to poverty stricken communities, and spreading knowledge on how to improve security of tenure.

The GLTN partners, in their quest to attain the goals of poverty alleviation, better land management and security of tenure through land reform, have identified and agreed on 18 key land tools to deal with poverty and land issues at the country level across all regions. The Network partners argue that the existing lack of these tools, as well as land governance problems, are the main cause of failed implementation at scale of land policies world wide.

The GLTN is a demand driven network where many individuals and groups have come together to address this global problem. For further information, and registration, visit the GLTN web site at www.gltn.net.

ABOUT THIS PUBLICATION

Sustaining Urban Land Information: A framework based on experiences in post-conflict and developing countries will assist land experts, government officials, donors and others involved in land information projects to avoid the costly development of an urban land information system that is too complicated, cannot be sustained or fails to support urban land management.

The framework is based on various case studies that are contained in Urban Land Information Management, a report that is available at www.gltn.net. The framework draws on UN-Habitat's operational experiences in a number of post-conflict and developing countries as well as other well-known cases.

This publication demonstrates that developing land databases at scale that directly support land management activities, such as urban planning, property taxation and increasing land tenure security, requires a long-term process and should be anchored in stable land institutions. This framework argues that in the absence of such a stable institutional and political environment only ad-hoc land information projects make sense, but that stand-alone projects of limited duration can also contribute to reaching the goal of sustained urban land information.

In this framework, you will find criteria that should be addressed in the design phase of land information projects and that will contribute to more sustained development, use and gradually expandable land information. This information will, in turn, help the development of urban areas, especially in post-conflict and other countries with underdeveloped land institutions.

HS Number: HS/116/12E
ISBN Number: (Volume) 978-92-1-132530-0

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