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**Addressing the Information Requirements of the Urban Poor – A Government-Community Partnership in Piloting the Social Tenure Domain Model in Uganda**

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## **Addressing the Information Requirements of the Urban Poor: A Government-Community Partnership in Piloting the Social Tenure Domain Model in Uganda**

Key Words: GLTN, land information, slums, STDN, tenure security

### **INTRODUCTION**

By 2030, 60% or about 5 billion of world's population will live in urban areas; 78% will be found in less developed regions (UN-DESA 2006, UN-Habitat 2006). In the recently published State of the World's Cities (2010/2011) by UN-Habitat, it was highlighted that urban slum population is expected to increase to 1.4 billion by 2020. Such realization has triggered a continuing debate in the global development discourse on a new phenomenon - the urbanisation of poverty. As Koffi Annan, the former United Nations Secretary General, rightfully pointed out; "sustainable urban development is one of the most pressing challenges facing the human community in the 21st century" (UN-Habitat 2001). On another hand, Tibaijuka (2009) asserted that 'there can be no sustainable development without sustainable urbanisation.'

UN-Habitat further stressed that if no decisive action is taken and unless radical efforts are made to deliver affordable land and housing at scale, cities will be hosts to hundreds of millions of new slum dwellers (UN-Habitat 2003, UN-Habitat 2009b). Urbanization also contributes substantially to climate change issues. Take for instance that the 20 largest cities consume 80% of the world's energy and urban areas generate 80% of greenhouse gas emissions worldwide (FIG 2010).

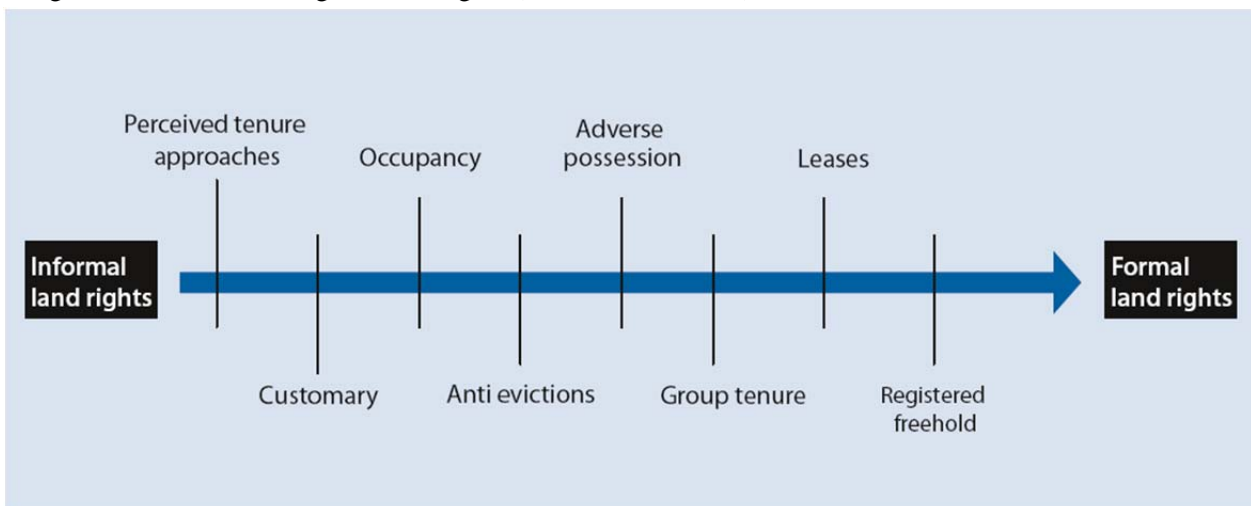
The Global Land Tool Network (GLTN) has been exploring solutions to address the challenges brought by rapid urbanisation, amongst others. As facilitated by UN-Habitat, it is a global partnership of key international actors (more information at [www.glt.net](http://www.glt.net)). Most people living in slums do not have registered land rights (Augustinus 2010) and is excluded from the 'benefits' of urbanisation. Evidence shows that as a country becomes more urban, its per capita income also tends to rise (UN-Habitat 2008a). The urban poor, however, has been excluded from this economic phenomenon as "informal settlements" are not covered by conventional cadastres as normally use by government authorities to extend public services and infrastructure and undertake development planning and city management. Informal settlements or slums, shantytowns, bidonvilles, asentamientos irregulares, elendsviertel, mudun safi,

truchobi, gecekondu, favelas, ghetto, katras, umjondolo, or by another name - have been defined as lacking one or more of the following five conditions: security of tenure, access to water, access to sanitation, durable housing quality and sufficient living area (UN-Habitat 2008a, UN-Habitat 2006, UN-Habitat 2003b and Palmer et al 2009).

The benefits of land administration systems are enormous which include contribution towards poverty alleviation, security of tenure, management of land disputes, improvement of land planning, management of natural resources and protection of the environment, amongst others (Williamson et al 2010, Burns 2007, Magel 2006 and Antonio 2006). However, in developing countries, cadastres only covers about 30% of the country and 70% are not covered by any formal land registration and information systems (Lemmen, Augustinus, Haile and van Oosterom, 2009). Slum dwellers are part of this 70% who have no legal, documented and registered land rights.

In this context that GLTN partners is promoting the concept of continuum of land rights (Figure 1) rather than a focus only on issuing individual freehold titles (UN-Habitat 2008b and UN-Habitat 2009a). Across this continuum, different tenure systems may operate either by individual and/or group claims and may change time. Conventional land titling approaches have largely failed to deliver their expected results because the existing technical solutions are expensive, inappropriate for the range of tenure found in developing countries, unsustainable financially or in terms of available capacity, and instead a range of land tenure options is more appropriate. While it is incrementally and widely accepted in the global discourse, a new set of land administration and information management systems are necessary to implement and support the concept.

Figure 1. Continuum/range of land rights (UN-Habitat 2008b).



GLTN partners are motivated to assist governments, land professionals and poor communities in urban and rural areas to improve tenure security at scale and committed to bridge the identified gaps. By now, stakeholders are aware of the emergence of a potential solution - the Social Tenure Domain Model (STDM). STDM is a more flexible land information system that can handle various types of land rights and claims particularly in informal settlements. It is based on a global standard (the Land Administration Domain Model). STDM is a specialization of LADM and through this standardization; data integration is possible (Lemmen 2010 and Enemark 2009).

## **LAND GOVERNANCE AND THE CHALLENGE OF SLUMS**

### **The Challenge of Slums**

The world is becoming urban. By 2050, it is expected that 7 out of 10 people will be living in urban areas. What is interesting to note is that between 2005 and 2010, Africa - home for the two-thirds of the least developed countries (LDCs) in the world, experienced the highest urban growth rates in the world and it is expected to remain relatively in the next 15 years.

The urban population growth in developing countries is characterized by informality, illegality and unplanned settlements and is strongly associated with urban poverty. Urban growth in the poorest countries is almost synonymous with slum growth (UN-Habitat, 2008a). But what does this mean in real terms? Augustinus (2010) explained that over the next 25 years, more than 2 billion people will be demanding for housing, water supply, sanitation and other urban infrastructure and services and by 2030, close to 3 billion people or about 40% of the world's population will require housing and basic infrastructure and services.

But not all is bad news. United Nations (2010), reporting on Millennium Development Goals (MDGs) stated that over the past 10 years, the share of the urban population living in slums in developing countries has declined significantly: from 39% in 2000 to 33% in 2010.

Meanwhile, UN-Habitat (2003b) has laid down some key recommendations in addressing the challenges brought by slums including on implementing slum prevention initiatives alongside with slum upgrading work and that security of tenure is more important for many of the urban poor than home ownership, *as policies based on ownership and large scale granting of individual titles have not always worked* (emphasis by authors).

## Land Governance

Complex global challenges such as climate change, rapid urbanisation, food, water and energy insecurity, natural disasters and conflicts have a clear land dimension. Land related issues include unequal access to land and other natural resources, unsustainable land use, insecurity of tenure, weak institutions to resolve conflict, dysfunctional land markets and institutions and inefficient and inappropriate land administration systems (Palmer et al 2009 and Antonio 2009, 2010).

UN-Habitat and FAO through Palmer, Friccka and Wehrmann (2009) have proposed a definition: *'land governance concerns the rules, processes and structures through which decisions are made about access to land and its use, the manner in which the decisions are implemented and enforced, the way that competing interests in land are managed.'* They emphasised that land governance embodies policy, legal and institutional frameworks surrounding statutory, customary and informal land practices and transaction. What is important in their contribution is the analysis and emphasis around 'power' and 'politics' surrounding land management and administration.

Patel (2007) reminded us that while only two tasks for urban poor are seemingly linked to MDGs (i.e. targets on slums and water and sanitation), what is being inadvertently missed out is that almost all the MDG targets will increasingly be implemented in urban areas as the world continues to be urban. Augustinus (2009) further explained there are other key land issues that impact on the global delivery of shelter and adversely contributed to the slow achievement of MDGs. These issues include the following:

- Women who composed 50% of world's population only own 2% of land,
- Lack of political will by governments about going to scale and addressing the needs of the whole population,
- Proliferation of graft and corruption in the land sector. Transparency International (2009) reported that land services is the third most corrupt sector behind the police and the courts and that petty corruption in the sector can sum up to US\$ 700 million (Transparency International-India, 2005),
- Most countries have incomplete, unreliable and non-interoperable land records and information systems, and
- Lack of sufficient pro-poor land tools to assist in the implementation of good land policies.

Central to discussion of good land governance is the provision of access to land and security of tenure to all with particular attention on the poorer segments of the society like women and slum dwellers. A wealth of literature emphasised the need for security of tenure and elaborate its benefits from equity and human rights lens to economic and livelihoods perspective, to peace and stability view, up to citizenship and empowerment standpoint (UN-Habitat 2008, 2007, 2003a and 2003b; Deininger and Enemark 2010; Palmer et al 2009; Augustinus 2009; FAO 2007; Deininger 2003; UN-Habitat 1999). UNESCAP/UN-Habitat (2008) puts this in simple words, ‘for the urban poor, there is probably no more fundamental problem than their inability to access decent, secure land for even the most minimum housing needs’. However, Antonio (2007) pointed out that provision of security of tenure is a significant requirement but not the only requirement particularly in curbing urban poverty. He further stressed that the accepted strategy is more diverse where securing tenure occupies a significant part of the whole.

### **The Birth of STDM as a Land Governance Tool**

The development of STDM is to support and implement the concept behind the continuum/range of land rights. In 1998 experts identified that various tenure arrangements could not be included or fit with the conventional land registration systems and parcel-based spatial description of the rights (UNECA, 1998). Fourie (2001) further advanced the idea of the need for new forms of spatial information, not the cadastre, to provide tenure security in informal settlements particularly in slum upgrading initiatives.

Christian Lemmen of the Faculty of Geo-Information Science and Earth Observation (ITC) of the University of Twente took the lead in developing the solutions to fill this technical gap by starting to develop the Social Tenure Domain Model (STDM) at the conceptual level alongside with the development of an FIG-led Land Administration Domain Model (LADM) (Lemmen et al 2007, Augustinus et al 2006 and Lemmen and van Oosterom, 2006). ITC then further develop the design of the model including the technical aspects. FIG, through the leadership of the then President Stig Enemark, has supported its development including the peer-reviews of STDM designs (i.e. conceptual, technical and functional) by known land professionals. In 2009, the initial version of the STDM prototype was tested by UN-Habitat and ITC in the context of the rural land administration in Ethiopia in collaboration with the World Bank (Zevenbergen and Haile 2010). The STDM prototype was then launched during the FIG Congress in Sydney, Australia, April 2010 including the new joint publication with FIG and ITC: *'The Social Tenure Domain Model - A Pro-Poor Land Tool'*. Finally, the tested STDM prototype including the designs was finally turnover by ITC to UN-Habitat/GLTN in August-September 2010.

Since then, UN-Habitat keeps working on its enhancement and further development in three areas: adding more functionality, improving the user-friendliness of the software and reshaping STDM to cater for the information needs and requirements of the informal settlements.

## **INFORMATION REQUIREMENTS OF POOR URBAN SETTLEMENTS**

### **Land Information Management – Importance, Approaches and Trends**

Dale and McLaughlin (1988) offered us a clear guidance on the benefits of land information. They emphasised that land information is a prerequisite for making decisions related to land planning, development, investment and management. Land information is also an asset for informed policy making in the public and private sectors (Williamson et al 2010). It is further reiterated that a well-functioning land information system is one of the most important preconditions to providing land for housing the poor and an essential element for planning (UNESCAP/UN-Habitat 2008). Meanwhile, Steudler et al (2010) explained that the introduction of information technology (IT) systems can assist good land governance in general and can improve transparency.

FAO (2007) reminded us that the introduction of information technology and communications (ICT) has the potential to contribute to good governance of land administration by improving efficiency, consistency, accountability, transparency and accessibility. Land administration is defined as the ‘processes of recording and disseminating information about ownership, value and use of the land and its associated resources (UNECE 2005). However, such definition may not be applicable to other regions particularly in the developing countries. Each country may have different descriptions and components of land administration systems. In general, a land administration system provides a mechanism to properly implement land management policies and strategies of a country. Lemmen (2010) somehow summarised the above arguments by saying that the provision of land information in all areas and for all citizens will support the country’s quest to eradicate poverty.

UN-Habitat (2004) and UNESCAP/UN-Habitat (2008) have offered a simple description of a land information system - which is often a computer-based systems for organising information about land, including a piece of land’s location, size, boundaries, rights and tenure information, as well as its past and current use or possible uses with different degrees of accuracy depending on the purpose. It also warned us also that even the most sophisticated land records and information systems can be manipulated by powerful interest groups and at the end, the poor may be pushed out of the city and will be adversely

affected. On another note, it must be emphasized that land information system need not necessarily be computer-based particularly in most parts of Africa where paper-based systems at the local level might be more effective (UNECA 2007). Within the land governance framework, land information must be freely available and accessible to all members of the society subject to the protection of privacy (FAO 2007).

Deininger and Enemark (2009) contextualize this by saying ‘no development will take place without having a spatial dimension’. As emphasised by Uitermark et al (2010), to address the world’s challenges nowadays, there is a need to get a complete overview of who is living where, under what tenure conditions and in what location. FIG/UN-Habitat (2002) clearly illustrates the issues that need to be addressed in an attempt to develop a city-wide approach on land information management but also provided a list of good practices for reference. One of the key recommendations is the choice of an appropriate technology which should be easy to use and should facilitate interactions and interoperability among the various information systems and key stakeholders. Payne, Durand-Lasserve and Rakodi (2009) further pointed out that pro-poor regularisation of informal settlements needs a combination of a system of good governance and innovative technical solutions.

UN-Habitat (2004) suggested that as an alternative for cadastre and formal land registration systems, the local systems can be developed as they are seen to be more effective, simpler to maintain and are more transparent, low-cost and accountable. Van der Molen (2003) supported these arguments and said ‘...it would appear to be preferable to implement simple systems that can evolve into more complex systems over the course of the years’.

Efforts on developing records and land information management systems are benefiting from the advances from the technology including the development of entirely new model and approaches (Williamson et al 2010). This is particularly true with the introduction of satellite images for cadastral and planning applications; use of mobile phones for data capture, data sharing and mapping; access to internet applications including the free access to a wealth of high resolution maps (e.g. Google Maps); use of hand-held GPS for mapping and faster computers. An example of this is the use of satellite imagery where the present resolution is good enough to be used for various purposes including on adjudication of land rights. Lemmen et al (2009) is quick to say that the idea to use satellite imagery for cadastral application is not new and they proceeded in providing some examples. The use of mobile phones for data capture, mapping and Geographic Information Systems (GIS) applications is now becoming a normal practice too.

For example, the Society for Promotion of Area Resource Centres (SPARC) in India, an affiliate of Slum Dwellers International (SDI), is undertaking a participatory mapping for city-wide slum upgrading. In this project, NGO leaders and community members are taking the lead in mapping the slum boundaries using handheld GPS receivers and processing them digitally with the use of Google Earth. On the other hand, Steudler et al (2010) has provided us a good overview of the current uses and applications of free (libre) and open source GIS packages, afforded us some risks and constraints and has described to us the opportunities and potential of using them. They further pointed out that the license costs of proprietary software often created serious constraints and even stopped programmes and that open-source applications are more flexible to meet the needs of the local conditions and the poor in general.

Indeed, the use of IT systems, satellite imagery, hand-held GPS and GIS systems to create a land information system is no longer the 'exclusive privilege of the educated elites'. Organised poor communities and their networks are already learning to use these high-tech land information approaches and finding them to be a vital tool (UNESCAP/UN-Habitat 2008).

### **Participatory Enumerations – An Entry Point for STDM**

GLTN and various partners spend a week together on September-October 2009 to write a book called 'Count me in – surveying for tenure security and urban land management'. The book is about 'participatory enumerations', its purpose, applications and experiences from different countries and its potential for addressing issues related to land management and administration particularly in the urban areas. '**Participatory enumeration**' is a data-gathering process which is to a significant extent jointly designed and conducted by the people who are being surveyed (UN-Habitat 2010). It is an innovative approach where the people who are being enumerated are involved in the inception, design, management and implementation, data analysis and use of the data. These new ways of data gathering in settlements which was first developed by NGOs and community organisations have been called by other names, including *community mapping*, *people's census* and *self-surveys*, to name a few.

Why **participatory** enumerations? UN-Habitat (ibid) offered some responses below to this question:

- Participation can provide transparency and build trust in the exercise
- Once accepted, the local residents can easily cooperate and will provide the information required thus resulting to improved data gathering and better data.

- Participation also means self-empowerment. Residents can initiate, retain control of the process and ‘owned’ the process.

The data on informal settlements are needed for a wide range of purposes: to enable the residents to demand their rights as citizens, to improve land tenure, to plan for the provision of infrastructure and services, to redevelop/upgrade the slums, to guide housing improvement, land allocation and adjudication and to use in land administration and information systems (UN-Habitat, *ibid*).

Moreover, women have a critical role in participatory enumerations. For example, Huairou Commission (2007), reported that enumerations (or community mapping) allows grassroots women to assess and record the community’s needs and assets and to come up with solutions to the issues they are facing. Another example, which is considered one of the earliest, is that of India’s experience on ‘people’s census’ which helped prevent evictions and demolitions and become a powerful statement for the recognition of the rights of thousands of pavement dwellers (SPARC/PRIA, 1985).

One of the reasons that participatory enumerations is such an attractive and potentially effective tool is because of its nature – it is flexible and can be adapted to different needs and contexts. It is such an attractive tool that aside from NGOs and community organisations, others such as development projects or international bodies (such as UN-Habitat), national and local authorities and other stakeholder groups have been initiating and implementing participatory enumerations (UN-Habitat, 2010).

The implementation of STDM fits the co-management approaches inherent of participatory enumerations process and STDM can viably complement its huge potential applications towards inclusive planning, slum improvement and land information management initiatives.

## **STDM PILOT IMPLEMENTATION IN UGANDA**

### **Background**

Building from the prototype version, an ‘intermediate version’ of STDM was developed using some data from a Kenya-based urban NGO called Pamoja Trust. The intermediate version replaced Integrated Land and Water Information System (ILWIS) as the GIS component with Quantum GIS and STDM system was developed as a QGIS plugin. In June 2010, a joint project proposal between UN-Habitat/GLTN Secretariat and SDI aimed at piloting STDM in Uganda as a way of addressing the information

requirements of the urban poor for wider learning and application was developed and submitted to Cities Alliance for funding purposes. The proposal was approved in July 2010.

The Project was implemented alongside with the existing larger project called Transforming the Settlements of the Urban Poor in Uganda (TSUPU) aimed at re-enforcing the linkages between various urban sector programmes and initiatives by introducing systemic changes in delivering urban services, improving urban management and developing planning and policy frameworks. The Project is led by the Government of Uganda through the Ministry of Land, Housing and Urban Development (MoLHUD). For piloting purposes, the Municipality of Mbale was chosen.

The project design was based on two pillars: strengthening partnerships at all levels and building from community strengths and processes. With these two pillars, Cities Alliance, SDI, UN-Habitat/GLTN Secretariat, MoLHUD, Actogether and Mbale Municipality have provided advisory, technical and capacity development inputs. Most of the work including mapping, enumeration, community mobilisation, local consultations and sensitization and data entry, analysis and validation were done by Mbale Slum Federation and community members themselves.

### **Pilot Implementation Objectives**

The specific objective of the Project was to pilot test STDM and the documentation of the process and capacity building requirements around its use and application, in a selected municipality in Uganda for wider learning and application.

The long-term objective is to address the land information requirements of women and men living in slum communities and to build their capacity in the use and application of the land information systems based on free and open source software packages and in mainstreaming the thinking behind the continuum of land rights. This will form a basis for dialogue between local communities and cities in negotiations for improving tenure security, inclusive planning and enhancing access to basic services and infrastructure.

### **Implementing Partners and Their Roles**

#### **The ‘Facilitators’**

**Cities Alliance** – Aside from being the funding agency for the Project, Cities Alliance strategically placed the Project to coincide with the TSUPU programme implementation and link the Project with the Ministry. Cities Alliance also assisted the Project in its national and global advocacy efforts.

**International Federation of Surveyors (FIG)** – Since the STDM inception, FIG has been supporting the development of STDM and the promotion of continuum of land rights. While FIG has not been on the ground, through its Foundation, FIG has provided some grant funds to support data capture and documentation and provided sets of handheld GPS receivers from Trimble, Inc. Such support facilitated field work implementation.

### **The ‘Supporters’**

**UN-Habitat/GLTN Secretariat** – Aside from co-financing the Project, UN-Habitat/GLTN Secretariat facilitated the planning and consultation workshops and meetings, provided technical support and facilitate capacity development initiatives. Specifically, UN-Habitat/GLTN Secretariat led in the customization of STDM to suit the local context and needs and facilitated the implementation of the associated capacity development initiatives.

**Slum Dwellers International** – As the key implementing partner of the Project, SDI provided the necessary political, technical and administrative support in the over-all project implementation. It mobilized the support of its national network (Actogether and Slum Federation) on policy dialogues, advocacy and project implementation. It also co-financed the Project.

**Ministry of Land and Housing and Urban Development (MoLHUD)** – The Ministry provided the needed political and technical support to the Project. It enabled the Project to be mainstreamed in TSUPU project as well as it supported its implementation on the ground particularly by strengthening the linkages with Mbale municipal authorities.

**Actogether** – As a leading urban NGO in Uganda, Actogether served as the technical arm of project implementation in Uganda. It provided the necessary and continuous technical and information support to Mbale Slum Federation and community leaders and members in its project implementation. It also provided the liaison and communication work between the global, national and local implementing institutions and stakeholders.

**Municipality of Mbale** – The Municipality through its leadership particularly the Town Mayor and Town Clerk has provided enormous technical, coordination and logistical support. Aside from hosting the slum federation office, it even allowed its limited municipality staff and some council members to participate in advocacy, community mobilisation and sensitisation.

## **The ‘Implementers’**

**Mbale Slum Federation** – With the key support from SDI and National Slum Federation, the leaders and members of Mbale Slum Federation took the lead in policy and consultative dialogues with national and Mbale local authorities, community mobilisation, sensitization, capacity development, mapping, household interviews, enumeration and data collection and analysis. They served as the bridge between the technical and political partners and community members.

**Community Leaders and Members** – At the core of the project implementation are the community leaders and members of the two informal settlements. Most of them are active members of the Mbale Slum Federation and/or savings group. Most of the field enumerators are also coming from their communities. They participated in the whole enumeration exercise and actively engaged from the project preparation and consultation up to data analysis and validation.

## **Key Processes and Activities**

Through the support and intervention from the Ministry of Land, Housing and Urban Development (MoLHUD) and Municipality of Mbale, below were the key processes and activities adopted and implemented by the project:

**Planning and consultations** - Earlier in the project implementation, SDI and GLTN Secretariat conducted a series of consultation meetings with authorities (national and municipal), Actogether, slum federation and community members. Such consultations yielded in the understanding of STDM and its objectives, the finalization of the enumeration questionnaire, the development of an implementation plan, agreement on the roles and responsibilities as well as the identification and mobilisation of the needed support and resources.

**Mobilization and sensitization process** - The next step in implementing the project at settlement level is to mobilize community leaders and members through sensitization and awareness building process. Slum Federation leaders and members spearheaded this process in close collaboration with the Municipal officials with technical support from Actogether. Such process generated a wide support from the targeted communities and municipal council members on the project and its implementation. Enumerators from community members were identified and subsequently they were trained on mapping, data collection and administration of questionnaires.

**Customization of STD M** - Following the agreement with the local stakeholders and community members on the enumeration questionnaire and identification of the resources available such as satellite imagery and a handheld GPS, GLTN Secretariat proceeded to make some adjustments on STD M to customize the system to fit the purpose and local context and needs.

**Mapping and structure numbering** - With the assistance from Actogether, the Slum Federation and community members digitized the existing structures from the available satellite imagery and produce initial maps. Using the printed map, assigned enumerators numbered all existing structures and houses in the slum settlements using a unique code. Also, they made use of the handheld GPS to identify available community facilities such as water points, public toilet, dumping ground, roads, community centers, etc. and newly constructed houses/structures and update the map accordingly.

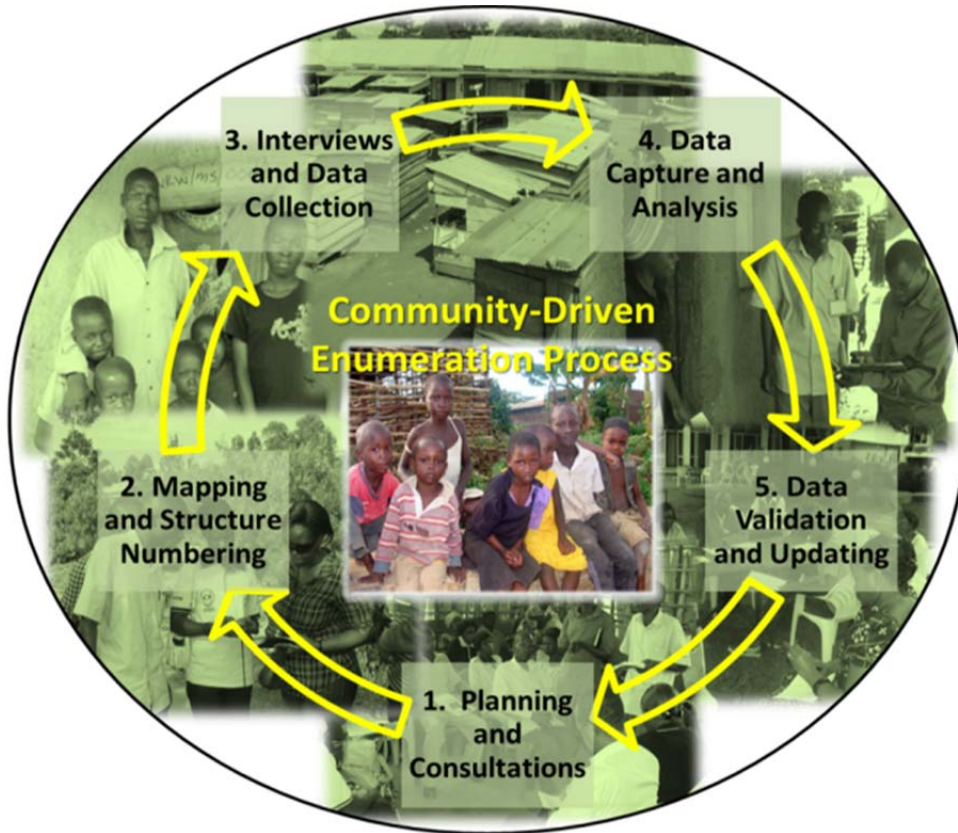
**Interviews and data collection** - As scheduled and communicated with the community, enumeration teams mostly accompanied by local leaders or elders and municipal officials, conducted house to house interviews administering the questionnaire. In addition, they collected other information such as supporting documents and photos, with the unique code painted or written in the structure as a background.

**Data entry and analysis** - With the filled up questionnaires and gathered information including supporting documents and photos, the enumeration teams entered all the data into the STD M system. This process also included the updating of the initial digital maps. STD M, being a simple and user-friendly system, is able to undertake quick analyses and reporting. The slum federation leaders and enumerators were trained on how to use STD M to analyze the data and produce reports.

**Data validation and continuous updating** - As part of quality assurance, the gathered information were validated by community members. This process enhanced the acceptability of the information and all stakeholders appreciated the fact that the turnaround time between the enumeration exercise and the production of results is relatively fast. After the validation period, enumeration teams and slum federation leaders updated the information in the system. Those community members who were not able to provide their comments and corrections during the validation period may come to the Slum Federation office to update the data. Some Slum Federation leaders and members were trained to manage the system and to continue the updating process.

To illustrate the process, please see Figure 2 below.

Figure 2. The Enumeration and Mapping Process

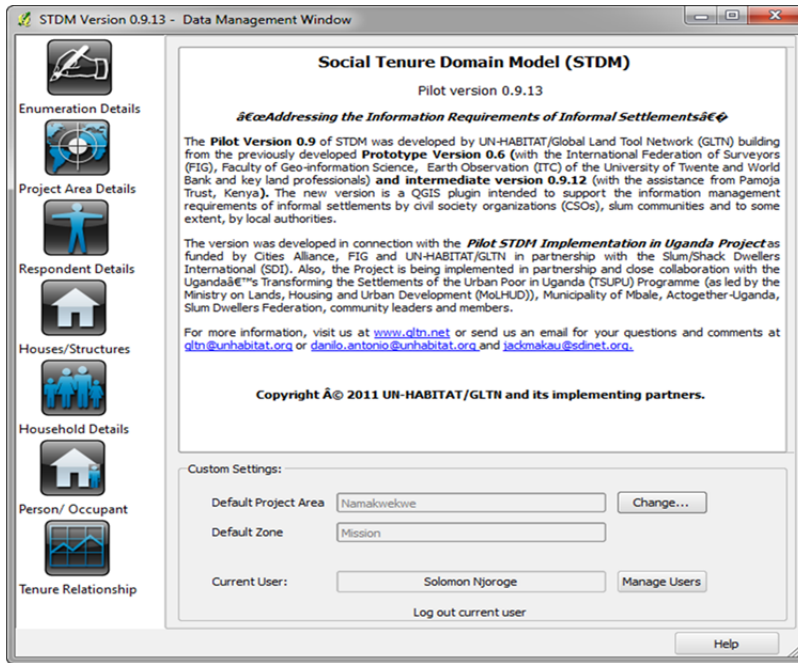


### Sample Data Generation and Analysis

This section will illustrate some data manipulation, management and analysis within the STDM plug-in. There are other useful functionalities and features of the STDM plug-in, but due to the limited space of this paper, only several functionalities will be highlighted. For the STDM pilot, satellite imagery was used to produce a settlement map wherein structures, houses, roads, water points, etc. were digitized. From the filled-up questionnaire, the data was entered into Excel for further processing. Once the information is entered and validated in Excel, the importing of such data to STDM is easy.

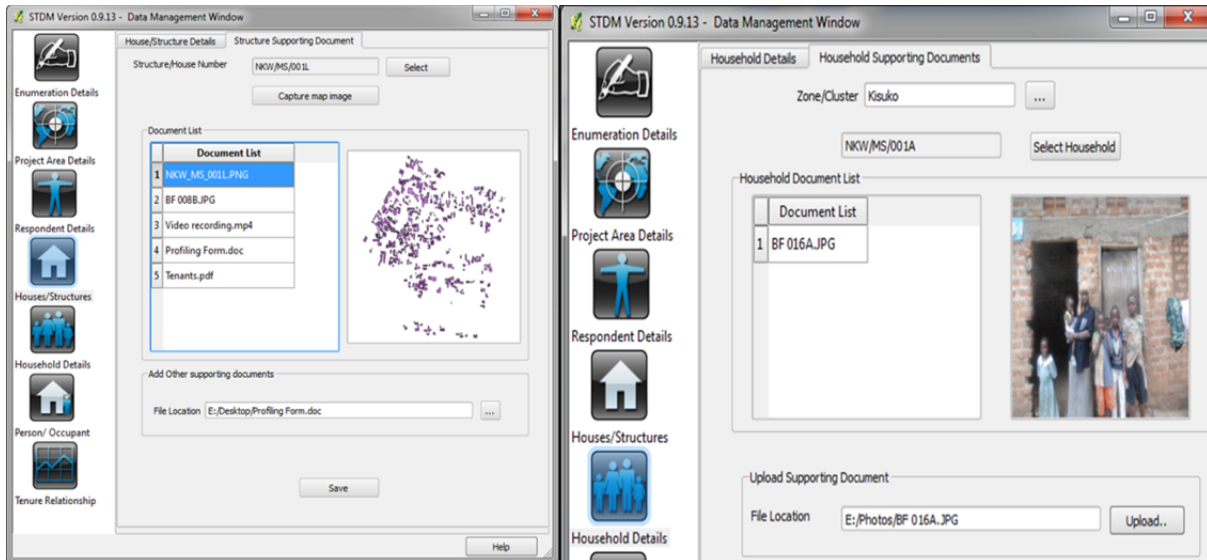
The STDM plug-in is part of the Quantum GIS components. The imported data could be checked within the data management window as described below. The data management window (see Figure 3) is also the STDM module for editing, updating and managing the non-spatial data.

Figure 3. Data Management Window



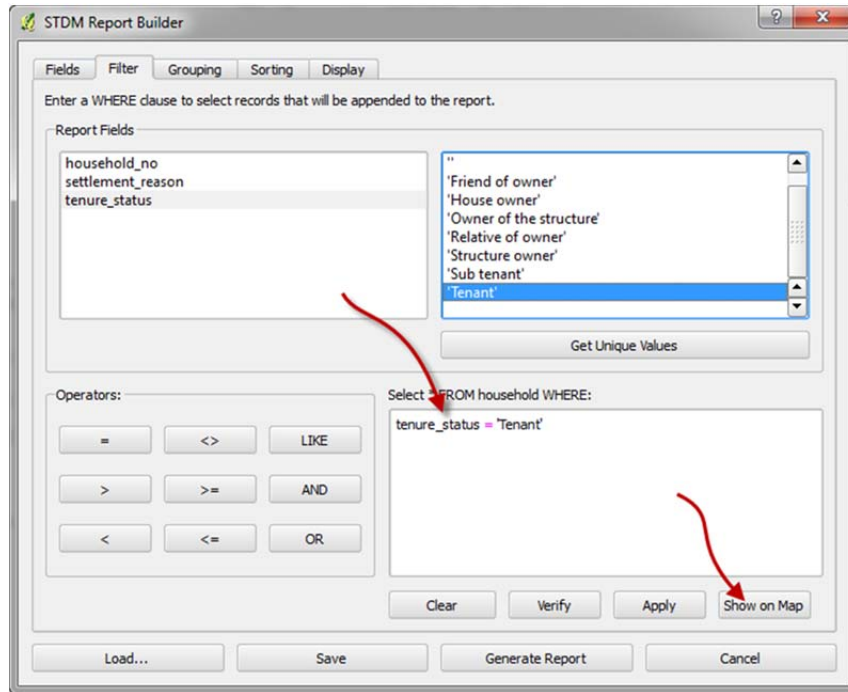
With the STDM plug-in, almost any type of documents, scanned images and text, photos and videos can be uploaded into the system (see Figure 4 below). These supporting documents could link the parties' (individual, group or household) tenure status to specific spatial unit like structure (as used in the pilot), land and other properties.

Figure 4. Supporting Documents



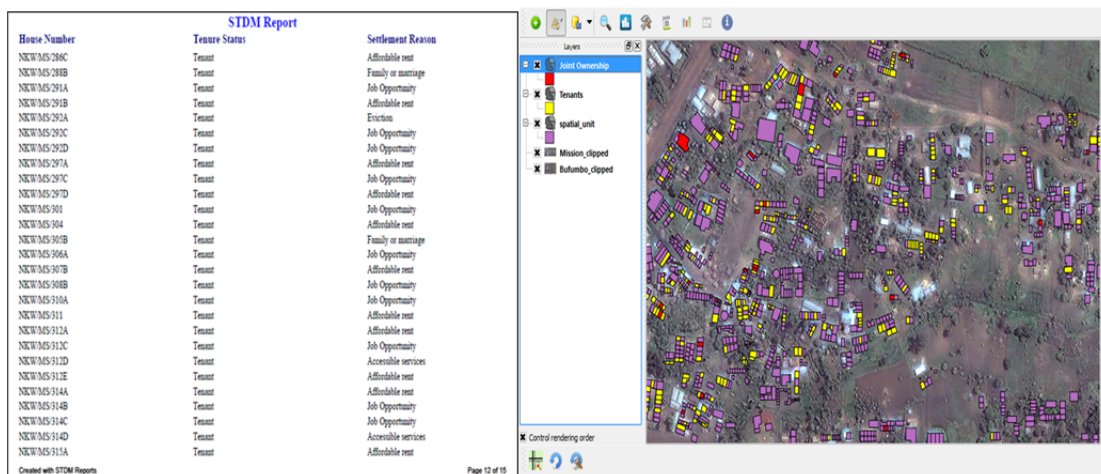
Also, one of its main advantages is to have a powerful tool called Report Builder (see Figure 5) which can be used for data analysis and data generation. With this tool, various tenure relationships could be presented including overlaps. The functionality is easy to use and even non-technical users like managers will find this specific functionality useful.

Figure 5. Generating Reports



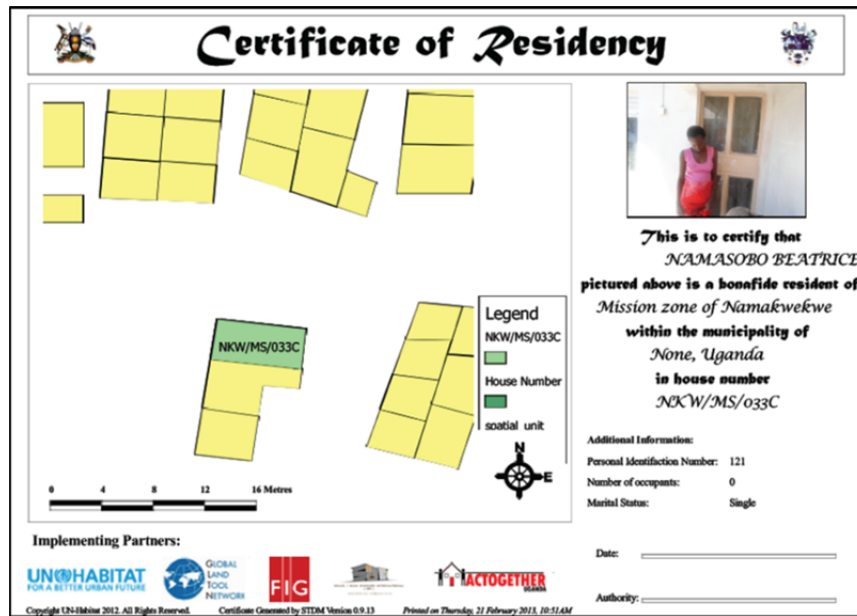
With the report builder, automatic reports can be generated including a matrix of the information or a specific map showing the selected data/information. Figure 6 below shows this.

Figure 6. Producing reports and maps



Also, STDM plug-in can produce a ‘certificate’ or even a tenure instrument combining the gathered information and the generated map. As STDM promotes the continuum of land rights, this ‘certificate composer’ will be of big use once the legal arrangements are in place and once the authorities decided what tenure instrument to provide. For the pilot area, the communities and authorities have initiated discussions to produce certificates of residency (see Figure 7). While this instrument may not be an instrument for tenure security, the community members find it useful as this will open up more development opportunities for them and they believe that such instrument will give them the first grip onto the tenure ladder.

Figure 7. Generating ‘Certificates’



## Initial Results and Impacts

Most stakeholders including slum dwellers themselves appreciated the added value of STDM in addressing their information requirements. Moreover, some stakeholders including government officials appreciated STDM as a potential tool for much larger urban development objectives. In summary, here are the initial impacts/achievements of the project.

- STDM was tested and proven to be technically sound to address the information requirements of informal settlers as well as government authorities.
- Community members are able to use and interact with STDM system and are confident to continuously manage and update the information.

- Data analysis informed communities' plan to pursue priority projects such as roads, lighting, water and sanitation. Communities are now negotiating with local authorities on possible community development initiatives as informed by collected data using STDM.
- The process provides an opportunity for the authorities and slum communities to initiate the dialogues for inclusive planning, access to basic services and infrastructure and potential tenure security improvement.
- Data generated, for instance the house numbers, will be used as a physical address system which will then enhance slum dwellers' access to other services.
- An international training of trainers and learning workshop on STDM use and application were conducted. The events were attended by about 40 participants working with slum communities from at least eight countries. The trainers will form part of the group that is expected to champion the use and application of STDM and also future users and trainers of STDM process.
- A regional learning center was established in Kampala, Uganda for capacity development and future requirements of STDM use and application particularly in the region.
- Increasing demand to use and apply STDM for several purposes in various situations.
- International acknowledgement of the STDM pilot experience and international recognition of STDM as a tool to promote tenure security and inclusive urban planning.

### **Challenges and Lessons Learned**

The pilot project while perceived as highly successful by most stakeholders has faced some challenges too. Under this section, it is worth summarizing the key challenges and lessons learned in the project as follows:

#### **Key Challenges:**

- **Transition in Management within Actogether.** Actogether as an urban NGO has a critical role in coordinating activities at community level in regards to provision of technical training, resource administration and coordination. It is unfortunate that during the data collection stage, a transition of management in Actogether has transpired which influence the over-all coordination. Partners like the

Slum Dwellers International and the Ministry of Land, Housing and Urban Development (MoLHUD) have to intervene to resolve the management issue and to prevent further delays and impacts in the project.

- **Difficulty in synchronizing timing and interventions from various projects.** The pilot project was designed to coincide with the TSUPU programme. However, participatory enumerations work for the target five (5) municipalities were almost completed before the pilot project was able to start. This situation did not offer an ideal situation in choosing the settlements for STD M pilot purposes. Also, interventions from FIG Foundation including the provision of handheld GPS receivers came a lit bit later.
- **Apprehension in using a new tool as STD M.** As expected, there were some apprehensions in using STD M because some staff were used to using other tools in mapping and database management and some staff were concerned about introducing a system like STD M might delay the whole enumeration process. The project partners have to address these issues through a sensitization and capacity development process.
- **More time is required for sensitization and training.** During the assessment, it is clear that more time should have been allocated in training the enumerators not only in administering the questionnaire but also in sensitizing the community members and local leaders.

#### **Lessons Learned:**

**The Project is a good model for partnerships.** The partnership between the international organizations, national institutions, local authorities and community stakeholders proved to be the ‘facilitating’ agents of change and innovations. The project is well received because all stakeholders are part of the implementation and existing projects/initiatives were considered in the design and implementation.

**The Social Tenure Domain Model (STD M) was proven to be technically sound, simple to use and can reflect realities on the ground.** Stakeholders appreciated the capability of STD M in capturing the information on informal settlements using simple technology and utilizing the existing capacities of community members. Also, slum dwellers including government stakeholders appreciated the capacity of STD M to generate reports and undertake analysis as soon as the data have been captured or entered into

the system. Also, as slum dwellers themselves are able to interact with the STDM system, it only proved that the system is simple to use and can be replicated elsewhere.

**A combination of pro-poor land tools and approaches can be effectively implemented.** The project implementation has demonstrated that multiple tools and approaches can be used and can complement each other. In this case, the community mobilisation and sensitization approaches by slum federation/SDI, the participatory enumeration process and STDM complement each other and proven to be effective.

**Ownership by the community of the process is critical for success.** Building from community network of SDI and slum federation, the Project has demonstrated that a people- centered and community-drive approach is vital to its implementation. The community members are central to the mapping and enumeration process from planning stage up to its implementation and post-implementation activities (i.e. validation of results). In this context that community easily accepted the results as they owned the process and they are the core players during the data collection process (i.e. enumerators also are community members).

**Capacity development is a catalyst for sustainability.** The project is clear that one of the most important elements of sustaining the development of a land information system like STDM is about capacitating the users on its use and on data updating and management. Aside from designing the information system in a simple manner for the slum dwellers to be able to comfortably use it, the Project was able to provide enough capacity development with the various stakeholders including government authorities, community leaders and slum federation members through various for a, meetings and orientation/briefings. Similarly, select slum federation members were formally trained to act as STDM operators. The project was also able to establish a Regional Learning Centre for the use and application of STDM. The Centre will serve as the regional training hub for STDM use by other interested slum federations in Uganda and from other countries.

**Pro-poor solutions have huge potential to impact on the lives of the poor.** The project has illustrated that a combination of pro-poor and affordable tools plus strategic partnership have a huge potential to impact on the lives of the poor. The results of the engagement of various actors in the project and the information being generated by STDM have strengthened the dialogues and partnership particularly of that of the slum dwellers and government authorities and among the members of the communities. It also showed that the use of information technology, GPS, GIS and land information system is not anymore the monopoly of the experts and professionals and that slum dwellers themselves can benefit from its advantages and use such technologies to articulate their needs and priorities, amongst other things.

## **OPPORTUNITIES FOR SCALING UP**

With the successful implementation of the STDM pilot in Uganda, the demand for its application and implementation has steadily increased including for potential use/application in other situations/contexts like natural resource management, land dispute resolution in post crisis situations, national land administration and customary tenure. While these are all possibilities, the STDM development team felt that focus is needed to produce an STDM version that will be most useful for tenure security improvement of the poorest of the poor. With partners, a strategy is being developed on the way forward. At technical level, STDM will be further improved as a result of the pilot experience.

However, building from the pilot experience, it is planned to scale up the capacity development initiatives on the use and application of STDM. With partners' support, it is envisioned that STDM for purposes of addressing the information requirements of the urban poor for participatory enumerations aimed at improving tenure security and settlements upgrading will be rolled-out in some countries.

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