An Innovative Land Information Tool for Documenting Tenure Rights of the Urban Poor in Namibia

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Summary

Namibia is undergoing a rapid and major transition from a rural-based society to increasingly based in urban areas, with 50% of the population now urbanized. This transition is most visible in rapid urban expansion areas, especially in informal settlements that accommodate poor families in shacks on the outskirts of towns. As a result of this high rate of urbanization, Namibia has been struggling with pressing land tenure challenges such as providing security and services for recently urbanized families. In many cities and towns, there is frustration at the slow pace of the current registration process to plan, survey and register land rights. In the rapidly expanding urban areas, many poor people have no official rights to the land, cannot invest in it and often have no access to basic services. To address these challenges, the government conceived the Flexible Land Tenure System (FLTS) as an alternative land tenure system catering for low-income groups in urban areas. The FLTS, as envisaged in the Flexible Land Tenure Act of 2012 and corresponding of regulation of 2018, introduces two new tenure types, that is, the starter title and land hold title. The Flexible Land Tenure Regulations also stipulates that the information in the starter and land hold title registers may also be recorded in a computer system, also known as the Computer-Based Flexible Land Tenure System (CB-FLTS). This paper outlines status of the application of fit-for-purpose technologies, such as the Social Tenure Domain Model (STDM), used in the development and operationalization of the CB-FLTS at the Ministry of Agriculture, Water and Land Reform.

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1. Introduction

Access to and tenure of land were among the most important concerns of the Namibian people in their struggle for independence. Immediately after independence, the Namibian Government initiated a comprehensive land reform process to address the inequitable access to and ownership of land. The establishment of the national land policy (NLP) in 1998 was one of the key milestones in providing equitable access to land for citizens. The Agricultural (Commercial) Land Reform Act of 1995 was enacted to address land issues in rural areas, where the majority of Namibians live, providing clear policy and administrative structures for land allocation and management. About 44 per cent of Namibia's land is commercial; other land is communal (38 per cent) and state-owned land (18 per cent). However, land distribution is very unequal and the government intends to bring equity in land ownership through land redistribution and tenure reforms.

Namibia has a population of about 2.6 million people, of which 50 per cent lived in urban areas in 2018 compared to 27 per cent in 1990. This represents an average annual increase of about 4 per cent. Apart from the capital city, Windhoek, Namibia has not developed large urban centres, despite the rapid increase in the urban population. This increase, without a matched investment in urban facilities, has led to the proliferation of informal settlements without any structured form of land tenure. To provide tenure and secure land rights for the people in informal settlements, the government enacted the Flexible Land Tenure System (FLTS) Act in 2012, followed by the accompanying regulations in 2018.

The FLTS is an innovative approach for providing affordable security of tenure as an alternative to the freehold tenure system. The basic concept is to establish an interchangeable tenure registration system that is parallel and complementary to the current formal system of freehold tenure. The concept is derived from the government's need to create upgradeable alternative land tenure options for people in informal settlements, and which complement the current formal system of freehold tenure. Section 6 (2) of the FLTS Act, 2012 recognizes the potential for a computer-based system to support registration and the need for easy retrieval of any information. Regulation no. 5 provides guidelines for the establishment of such a system; these include the use, the role of the system of registration, the integrity of data stored in the computer system, and documents that can be produced from the system, amongst other things.

Since 2003, Gesellschaft für Internationale Zusammenarbeit (GIZ) has provided support to the Ministry of Agriculture, Water and Land Reform (MAWLR)- previously the Ministry of Land Reform - through the Support for Land Reform Programme, in policy development, implementation, capacity building and organizational development. Recently, GIZ has supported MAWLR to implement the FLTS regulations through the establishment of the Land Rights Office (LRO) in Windhoek and pilot the implementation of the FLTS in various locations. Part of the support includes the development and operationalization of a Computer-Based Flexible Land Tenure System (CB-FLTS). The Global Land Tool Network (GLTN), which is facilitated by the United Nations Human Settlements Programme (UN-Habitat), is an alliance of global, regional and national partners contributing to poverty alleviation through land reform, improved land management and security of tenure, particularly through the development and dissemination of

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pro-poor and gender-sensitive land tools. GLTN partnered with GIZ to deliver the CB-FLTS, which is implemented through the Social Tenure Domain Model, a pro-poor land information tool developed by GLTN.

2. Overview of Land Tenure in Namibia

Namibia has two land tenure systems: freehold in declared urban areas and so-called commercial farms, and customary tenure on communal land, all of which is rural (Mendelsohn, et al., 2012). About 38 per cent of Namibia is designated communal land. Much of the remaining land is allocated for freehold farmland (44 per cent), national parks (17 per cent) and declared urban areas (1 per cent). About 1.3 million people live in rural areas - half of the total population - while the remaining 50 per cent are in urban areas. Access to and tenure of land were amongst the most important concerns of the Namibian people in their struggle for independence. Since 1990, and following the 1991 National Conference on Land Reform and the Land Question, and the Consultative Conference on Communal Land Administration in 1996, the government has continued to develop frameworks to ensure access to land for its nationals.

2.1. Land Tenure Systems in Namibia

Land in Namibia is divided into 44 per cent freehold (commercial), 38 per cent communal and 18 per cent state land. These tenure categories evolved mainly from the privatization of communal land into freehold during the colonial period, and from the proclamation of state land as parks for conservation and mining exploration. As it can be seen in the distribution of tenure categories, land distribution is very unequal and the government has been making efforts to bring equity in land ownership through land redistribution and tenure reform (Kasita, 2011).

2.1.1. Communal Areas

While the commercial or freehold land is surveyed and registered in the Deeds Registry in Windhoek, the communal land was neither surveyed nor registered until 2003. This created tenure insecurity in the form of self-allocation, boundary disputes, land grabbing, low investment and poor land management. To eliminate tenure insecurity in communal areas, the government introduced the registration of land rights in the communal areas through the Communal Land Reform Act, Act No. 5 of 2002. The Communal Land Reform Act deals with access to land in these areas by regulating land right allocation to residents there; it provides for the establishment of a communal land board (CLB), the institution tasked with land administration in the communal areas. The MAWLR supervises the work of the CLB.

2.1.2. Commercial Areas

Agricultural (commercial) land refers to any land or an undivided share in the land, other than land in a local authority area, land situated in a settlement area or land which the state owns or which is held in trust by the state. Ownership of land in the commercial farming areas is by virtue of freehold title. This means that land classified as "private property" in these areas denotes property owned by individuals holding rights to use, dispose of and exclude others from the resources. Unlike in communal areas, land in the commercial areas is well developed.

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2.1.3. Resettlement Areas

Resettlement is defined as the movement of people from an area with insufficient resources to the one which is more likely to provide a satisfactory standard of living (Ministry of Lands, Resettlement and Rehabilitation, 1997). Resettlement is a voluntary programme for which people apply and choose the preferred area for resettlement; this can be in either communal or commercial areas. In principle, the only restricted areas for resettlement are those that are declared as such by law or those considered too marginal for productive use. The NLP policy states that land acquired for resettlement purposes is provided to the beneficiaries on a 99-year leasehold.

2.1.4. Urban Land

The National Land Policy (1998) defines urban land as all land in human settlements, of any size, under the jurisdiction of a separate authority other than a traditional authority, such as a municipality, town or village council. Prior to independence, many urban areas developed and due to discriminatory policies that existed then, those areas were never proclaimed as municipalities or towns and no local authority administration existed. During the post-independence era, urban land administration was entrusted upon the local authorities. Freehold title is the only form of secure and registerable title available for urban land. It affords the holder ownership that is transferable and inheritable.

2.2. Flexible Land Tenure System

The Flexible Land Tenure System (FLTS) is an innovative approach to providing affordable security of tenure to inhabitants in the informal settlements in urban areas, as an alternative to the freehold tenure system. The basic concept is to establish an interchangeable tenure registration system parallel and complementary to the current formal system of freehold tenure. It was formally introduced through the Flexible Land Tenure Act, 2012 (Act No. 4 of 2012), followed by the regulations in 2018. The concept is derived from the government's need to create upgradeable, alternative land tenure options on informal settlements, and which complement the current formal system of freehold tenure. The key characteristics of the FLTS system are:

- *Flexibility* - it is at the discretion of the local authorities to choose the appropriate type of tenure for the formalization of an informal settlement;
- *Interchangeability* - the different tenure types catered for in the parallel registries can be upgraded;
- *Parallelism* - parallel to the existing freehold registration system in that parallel institutions will be responsible for the registration of different tenure types.

2.2.1. Computer-Based Flexible Land Tenure System

Computer-based land tenure registrations systems are not new and several implementations exist in the African context. Botswana's Government introduced the Accelerated Land Servicing Programme to meet the demand for urban housing and to respond to the customary "right" to land in urban areas. It developed and used a computer-based system to allow lodging and processing of plot registration at the Department of Lands (Adams, et al., 2003). In South Africa, the Registrars

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of Deeds and the Surveyors-General undertook a process of digitization of the data they controlled. In total, 82 million deed records were transferred to a new computer-based registration system by 1998 (Le Meur, 2005). In Namibia, an Enhanced Namibian Communal Land Administration System (NCLAS-2) is currently in use that includes leasehold and appeals management modules, and promotes effective and efficient land management.

In the same spirit, Section 6 (2) of the FLTS Act, 2012 recognizes the potential for a computer-based system to support registration and the need for easy retrieval of any information. Regulation no. 5 provides guidelines for the establishment of such as system, and includes:

- A computer system may be used with relation to registers kept in terms of the Act and must be maintained in such a manner that the system reflects the information in the register;
- The information stored in a computer system in terms of sub regulation (1) is not a register referred to in section 6 of the Act;
- The Registrar of Deeds must establish such procedural rules as he or she considers expedient in order to ensure that:
  - All changes to the registers are reflected in the computer system;
  - That only persons authorized to make changes to the data stored on the system can do so;
  - The system maintains a record of all changes and by whom such changes have been made; and,
  - The system can be audited to determine its conformity with the registers.
- A registrar may produce a printed document from the computer system and such document is deemed to be a certificate referred to in regulation 6 (2) or 6 (3).

3. Innovative Tools and Approaches

While there are various key strategies and interventions in addressing poverty reduction, and sustainable development in general, land governance initiatives are increasingly becoming critically important. Good governance in land tenure and administration is recognized as essential for promoting economic development and ensuring good management through all levels of society. In this context, the development of reliable land information systems has become strategic and useful to bridge the information divide.

Various literatures have pointed out that the benefits of land administration systems are enormous which include contribution towards poverty alleviation, security of tenure, management of land disputes, inclusive planning, management of natural resources and protection of the environment, amongst others (Antonio 2006, Zakout et al 2006, Burns 2007, Williamson et al 2009). However, in developing countries, cadastres and parcel-based land administration systems only covers about 30% of the country and 70% are not covered by any formal land registration and information systems (Lemmen et al, 2009). Most of the poor are part of the 70% who have no legal,

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documented and registered land rights. What they have are informal, customary, unwritten and over-lapping land rights and claims.

GLTN, and its more than 80 international partners, has been exploring solutions to address the above challenges through the development of pro-poor and gender appropriate land policies and tools. GLTN, as facilitated by UN-Habitat, is a global partnership of key international actors who are working together to specifically address land tenure and land governance issues. GLTN partners have come together to come up with new thinking, innovations and tools to improve security of tenure thereby improving the lives of the poor and ensuring country's national development within a shorter timeframe.

One of these tools, is the Social Tenure Domain Model (STDM), which has been customized to meet the technical and functional requirements of the CB-FLTS.

3.1. Social Tenure Domain Model

Information is power. Existing Land Administration Systems require extensions to include all existing types of tenures. This is the advocacy behind the continuum of land rights approach but the need for this is not always recognised and institutional changes are not so easy to implement. The Social Tenure Domain Model (STDM) could close this gap: STDM tool allows for the recordation of all possible types of tenures; STDM enables to show what can be observed on the ground in terms of tenure as agreed within local communities. Conventional land administration systems cannot easily handle customary and informal tenure systems. The concept of the Social Tenure Domain Model is to bridge this gap by providing a standard for representing 'people – land' relationships independent of the level of formality, legality and technical accuracy. The STDM is also a 'specialization' of the ISO-approved Land Administration Domain Model (LADM). In this context, specialization means that there are some differences, which are mostly in the terminology and in the application area. LADM development took place in parallel of STDM development as a concept and a model, and that the core developers of both models are the same or supportive of each other. For example, any form of right, responsibility or restriction in a formal system is considered as a social tenure relationship in STDM. The STDM information tool provides the front-end interface for testing and applying the STDM concept and model. It is built on top of free and open source geospatial software products. The client is based on the QGIS open source framework, whereas the backend is based on a PostgreSQL/PostGIS stack for managing both spatial and aspatial data. The tool also provides basic document management capabilities for attaching supporting documents.

STDM tool was implemented (and currently being implemented) in many countries and in various contexts and purposes (more information at www.stdm.gltn.net). While STDM is frequently used in improving security of tenure in informal settlements and customary areas, the tool is flexible enough which is illustrated in its application in the formal context in the form of the CB-FLTS in Namibia.

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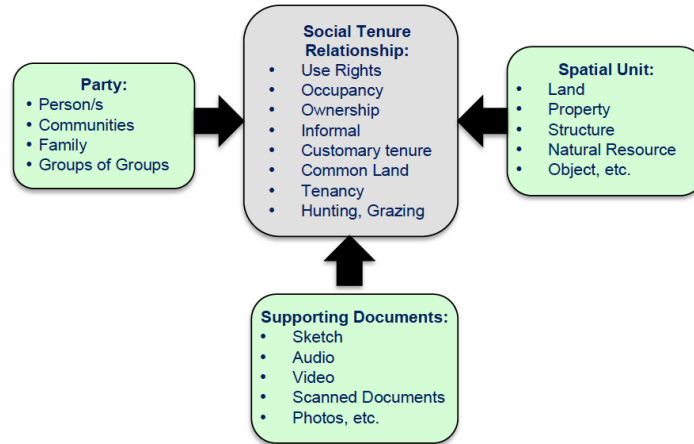Volunteering for the future - Geospatial excellence for a better living

Figure 1: The STDM Conceptual Model explains the interrelationship between parties, social tenure, and the spatial units supported by relevant documents (Source: UN-HABITAT/ GLTN, 2014)

4. Implementation of the CB-FLTS

STDM software was identified as a suitable framework since it inherently incorporated some of the key prerequisite requirements that were identified as the basis for the CB-FLTS. These included: conformance to the ISO-approved Land Administration Domain Model (LADM); its application of a highly-scalable and high-performance relational database management system (RDBMS) with spatial capabilities; and, use of free and open source software (FOSS) packages.

Its implementation was divided two phases:

a. A pilot phase from 2018 - 2020 that focused on the initial registration of land hold title rights;
b. Full-scale implementation of the system which supports the establishment and management of digital starter and land hold title registers as shown in Table 1 below. This is currently ongoing and is expected to be finalized at the end of 2022.

Land Hold Title	Starter Title
• Transfer of rights • Upgrade to full ownership • Registration of Mortgages	• Establishment of scheme • Upgrade to land hold title rights • Upgrade to full ownership • Transfer of rights
Administrative Functionality	
• Statistical reporting on performance of LRO using various indicators such as monthly rate of scheme processing, certificate production etc. • Monitoring of user activity e.g. login and logout, record access • Database audit trails	

Table 1: High-level business processes for management of land hold and starter title rights (Source: UN-Habitat/GLTN, 2020)

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4.1. Components of the CB-FLTS

The Computer-Based Flexible Land Tenure System is a socio-technical information system that brings together technology, data, people and their application in a public organizational context. The system requires accurate data (generated at the municipality level); qualified and motivated people to operate, maintain and update the system; and institutional arrangements and management that have a vision, and technical skills to orientate and support the operationalization of the system. Its key components include:

Data that is expected to be consistent, quality, accurate, representative of the correct scale and compatible. It includes a list of holders, lodgement documents, field book, plot data.

Technology consists of server and client hardware, open source software, networks and support technology (UPS, air conditioning, back-up storage facilities). Figure 2 below shows the architecture of the software components.
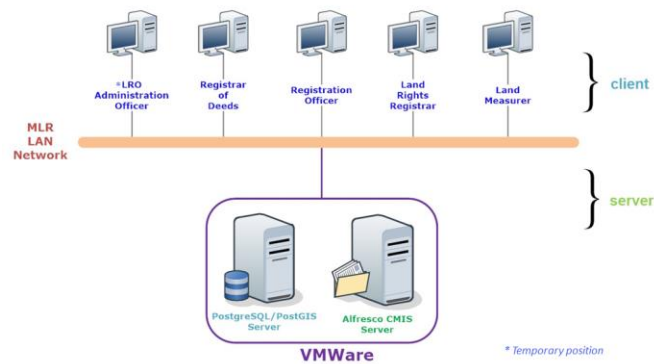

Figure 2: System architecture of the CB-FLTS as deployed in MAWLR's ICT infrastructure (Source: UN-Habitat/GLTN, 2020)

People play a critical role for a successful deployment, maintenance and troubleshooting of the system. This has involved discussions on and exploring options for career development, training opportunities to avoid rapid staff turnover and loss of personnel.

Organization and institutional arrangements within the relevant departments in the Ministry as well as with the local authorities to foster cooperation and promote a stable and capable culture of developing and exchanging information on starter and land hold title rights.

Funding - the maintenance, use and update of the CB-FLTS has initial funding for staff, equipment and supplies from both GIZ and the Ministry. However, the funding will need to be secured beyond the life span of this project. The Ministry is considering options on how to monetize the information on starter and land hold title rights by charging directly or indirectly for services or products provided or derived. The Costing and Financing of Land Administration Services (Burns & Fairlie, 2018) publication by GLTN provides a guiding framework that can assist public land agencies to identify core needs and required investments for institutionalizing land reforms including value-for-money assessments of costing proposals.

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4.2. Key Intervention Areas

The implementation of the CB-FLTS has focused on two key areas, these are: a) improving the management of data on starter and land hold titles through the development of digital business processes which were aligned, as much as possible, to the manual processes; designing, developing and deploying modules using agile approaches; and, developing various technical documentation to support the use, maintenance and troubleshooting the system by different groups of users at the Ministry; and, b) strengthening the capacity of change agents and implementers in promoting and operationalizing the CB-FLTS. This included undertaking a capacity assessment, as shown in Figure 3 below, to assess the preparedness of the LRO in operationalizing the CB-FLTS. The report provided recommendations on capacity development activities that could be implemented quickly by various offices in the Ministry, particularly the Land Rights Office, Deeds Registry, Programme Management Unit and Division of Information Technology Services. A good number of these recommendations revolved around institutional support on creating awareness on the FLTS and promoting its implementation by the key departments FLTS. Based on the assessment report, GLTN provided the required resource persons to support the delivery of appropriate capacity development initiatives and interventions, as proposed in the capacity development plan targeting key staff at the Ministry. To strengthen coordination of information and knowledge management, and promote ownership of the project by the Ministry, an information working group, known as the CB-FLTS Information Working Group, was established. The group was made up of surveyors, land administration experts, ICT experts, drawn from the different directorates and divisions in the Ministry, and was responsible for:

- Reviewing and validating the functional design of the system;
- Providing a mechanism for reporting back to the respective offices of the representative members on the status of implementation of the system;
- Reporting back to the FLTS Steering Committee on the status of implementation of the system;
- Creating institutional capacity, memory and baseline for future reference.

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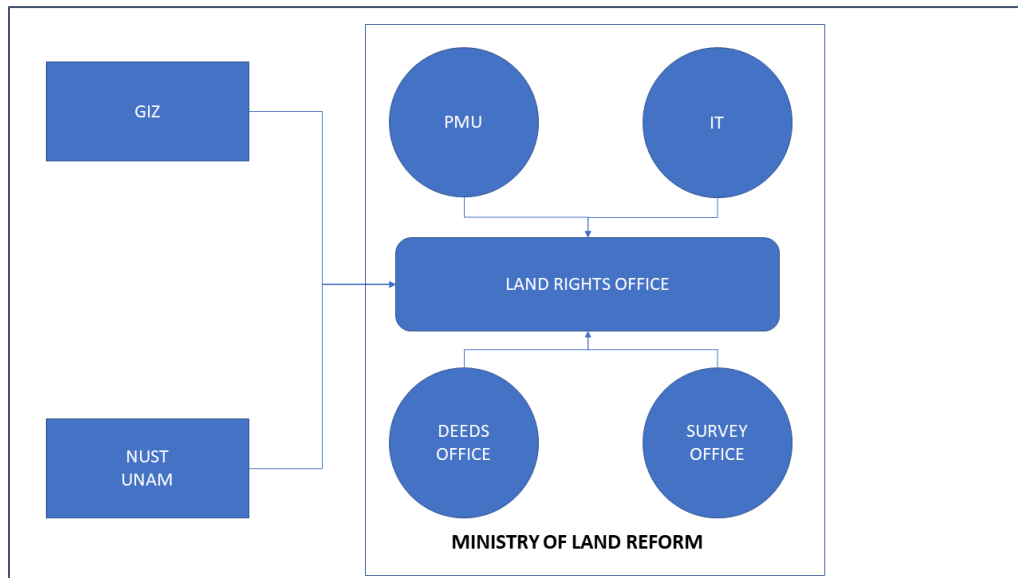Volunteering for the future - Geospatial excellence for a better living

Figure 3: Capacity assessment framework of stakeholders to support operationalizing the CB-FLTS (Source: Mutua & Christensen, 2020)

5. Initial Impact of the CB-FLTS

Some of the key milestones that were achieved during the pilot phase included the development and deployment of the CB-FLTS version 1.0 at the LRO. This was complemented by the training of MAWLR's system administrators and LRO officers in the administration and use of the CB-FLTS respectively, as well as the documentation of data standards and formats to ensure quality and consistency of input data in the system. As a result, the Government of Namibia, through the Ministry, has to date issued over 2,000 certificates of land hold title to households in different informal settlements including those associations in Freedom Square, an informal settlement in Gobabis municipality, where STDM had been piloted through a collaboration between GLTN and Namibia Housing Action Group (NHAG) in 2015. Overall, this is a huge milestone to the residents of the different informal settlements and to the stakeholders championing the improvement of tenure security of middle and low-income groups residing in different informal settlements of Namibia. The land hold titles are a statutory form of tenure which include similar rights of freehold ownership, hence improving tenure security to communities that were previously insecure and undocumented and in so doing, improving their quality of life. These residents now have the liberty to incrementally improve/develop their dwellings, i.e. housing and other basic facilities including water and proper sanitation.

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References

Adams, M., Kalabamu, F. & White, R., 2003. Land tenure policy and practice in Botswana-Governance lessons for southern Africa. *Journal fur Entwicklungspolitik,* 19(1), pp. 55-74.

Antonio, D., 2006. *Instituting Good Governance in the Land Administration System - The Philippines' Perspective,* Rome: FAO.

Burns, T., 2007. *Land Administration Reform: Indicators of Success and Future Challenges,* Washington DC: World Bank.

Burns, T. & Fairlie, K., 2018. *Framework for Costing and Financing Land Administration Services.* Nairobi: UN-Habitat.

Christensen, S. F., 2004. *The Flexible Land Tenure System – The Namibian solution bringing the informal settlers under the register.* Nairobi, FIG.

Kasita, M., 2011. *Establishing communal land registration in Namibia: The process, benefits and challenges.* Washington DC, Annual World Bank Conference on Land and Poverty.

Le Meur, P.-Y., 2005. *Land Tenure Information and Land Policy in Sub-Saharan Africa,* Rome: FAO.

Lemmen, C., Augustinus, C. & van Oosterom, P., 2009. *The Social Tenure Domain Model: A Pro-Poor Land Rights Recording System.* HJ Lemmer: GIM International.

Mendelsohn, J., Shixwameni, . L. & Nakamhela, U., 2012. *An Overview of Communal Land Tenure in Namibia: Unlocking its Economic Potential,* Windhoek: s.n.

Ministry of Lands, Resettlement and Rehabilitation, 1997. *National Resettlement Policy.* Windhoek: Government of Namibia.

Mutua, F. & Christensen, A., 2020. *CB-FLTS Capacity Assessment in Namibia,* Nairobi: UN-Habitat.

Weber, B. & Mendelsohn, J., 2017. *Informal settlements in Namibia: their nature and growth.* Windhoek: Development Workshop Namibia.

Williamson, P., Enemark, S., Wallace, J. & Rajabifard, A., 2009. *Land Administration for Sustainable Development.* s.l.:ESRI Press.

Zakout, W., Wehrmann, B. & Torhonen, M.-P., 2006. *Good Governance in Land Administration - Principles and Good Practices.* Rome: FAO/World Bank.

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