

Strengthening Land Rights in Pader District, Uganda with the Volunteer Community Surveyor Program

Israel TAIWO (Nigeria), Simon MWESIGYE (Uganda) and Claire BUXTON (British Columbia)

Key words: Access to land, Cadastre, Digital cadaster, Land management, Security of tenure, Young surveyor, VCSP

SUMMARY

Strengthening land rights and security of tenure requires innovative tools and approaches. The Volunteer Community Surveyor Program (VCSP) jointly facilitated by the Young Surveyors Network of the International Federation of Surveyors (FIG) and the Global Land Tool Network (GLTN) of the UN-Habitat is an innovation that seeks to match the competence of young surveyors with survey related challenges for social impact and professional development. One of the objectives of the VCSP includes working with partners to strengthen land rights and security of tenure among other things. This paper is a report of how land rights and security of tenure was strengthened in a project executed by the GLTN Partner, Uganda Based Association for Women and Children's welfare (UCOBAC) in Pader district, Uganda with the participation of some Volunteer Community Surveyors (VCSs). The paper highlights the responsibilities of the VCSs during the project. It further illustrates the benefits of the VCSP program to the Pader project, tenure security and the volunteers themselves. The Pader project upholds the fit for purpose land administration approach for managing informal and customary land rights. This paper further recommends a scaling-up of the VCSP to support a socially inclusive system capable of ensuring the security of tenure and protection of land rights for all by providing the technical expertise required to fast-track the documentation of unregistered lands.

Strengthening Land Rights in Pader District, Uganda with the Volunteer Community Surveyor Program

Israel TAIWO (Nigeria), Simon MWESIGYE (Uganda) and Claire BUXTON (British Columbia)

1. INTRODUCTION

2. BACKGROUND

2.1 Land Rights and Tenure Security

The management and administration of land for all requires a dynamic approach that extends beyond conventional land registration systems into less conventional methods. Methods that are essential for the recognition, recordation and security of tenure for the deprived – neglected communities, informal settlements and customary areas (Lemmen, 2013; Lemmen & Haile, 2009). The right to land is defined in Quan & Geoffrey (2008) as an entitlement that is recognized socially or legally to access, use and control land and its related natural resources. The inability of the deprived to access, use or control land in Africa and some other parts of the world precludes entitlements; leaving deprived land users with a form of use that is neither defined nor recognized. In the midst of these prevailing land-related challenges faced in Africa, women and children stand at an extremely critical point (Raab, 2017). Meanwhile, the deprived population substantially contribute to rural and urban food security. Their inability to access, legally use and socially control land therefore significantly constrains their productivity. Hence, the need to strengthen land rights and security of tenure for all citizens of the earth, especially the deprived.

There is a great demand for gender-responsive, socially inclusive and participatory tools in land administration and management (Chigbu, Haub, Mabikke, Antonio, & Espinoza, 2016; Raab, 2017). Therefore a need for effective and efficient implementation becomes clear. Similarly, the introduction of several land reforms that promote inclusiveness and affordability in land registration and management also need active implementation phases of recording rights and subsequent maintenance. Several land professionals and organizations have contributed to the design of methods for the implementation of socially inclusive and innovative tools for land management and administration (Chigbu et al., 2016; Enemark, McLaren, & Lemmen, 2016; GIZ, 2016; Palmer et al., 2009; Sait, Peters, & Jonsson, 2011; Walters, 2011). They have as well supported several prototype implementations across various countries of the world using different tools and approaches. Scaling-up innovative tools and approaches to aid land tenure security has always highlighted the scarcity of technical expertise to aid the implementation of socially inclusive land rights (Chimhowu, 2019; Hanstad, 1998; Krigsholm, Riekkinen, & Ståhle, 2020; Thontteh & Omirin, 2015). Hence, the need for an initiative to support the rights and protect the security of tenure of the deprived with increased access to technical expertise.

2.2 The VCSP Initiative

The VCSP is an initiative of the Young Surveyors Network (YSN) of the International Federation of Surveyors (FIG), originally created with the Global Land Tool Network (GLTN) of the UN-Habitat. The FIG YSN is a body of young surveying professionals with primary responsibilities of improving participation of Young Surveyors within the FIG and networking young professionals for career progression. The competency-based program was instituted between the GLTN and FIG YSN for “providing technical support and strengthening the capacity of implementing partners at the country level; strengthening the role of young surveyors in promoting and improving land governance at country level, and, enhancing and enriching the professional career development of young surveyors” (Nyamweru, 2018). The VCSP seeks to aid young surveyors to face the challenges of undocumented land worldwide, mitigate the increasing effects of climate change, manage rapid urbanization and increasing competition over land among other challenges.

The VCSP initiative supported the Uganda Community Based Association for Women and Children’s Welfare (UCOBAC) in Pader District, Northern Uganda. The UCOBAC project was titled “Strengthening Women’s Land Rights and Security of Tenure in Uganda: Implementing Innovative and Gender Responsive Land Tools and Approaches” but was informally shortened to the “Pader project”. UCOBAC is a Non-Governmental Organization (NGO) involved with improving the welfare of vulnerable women and children. In the context of tenure security and land rights; UCOBAC seeks to strengthen women’s land rights and security of tenure in Uganda by implementing innovative and gender-responsive land tools and approaches. UCOBAC in partnership with the GLTN and relevant Government agencies facilitated the use of pro-poor and gender-responsive land tools in awareness creation, land documentation, acquisition of Customary Certificates of Occupancies (CCOs) for parties and training of local expertise for subsequent land registration processes in the Pader district.

Two young surveyors were deployed by the VCSP at different times during the project implementation. The VCSP gives the title Volunteer Community Surveyor (VCS) to those who volunteer in-Country with the VCSP. Brenda Ayo, a Ugandan VCS, was first deployed to assist in the project. At the expiration of her tenure, Israel Taiwo was deployed from Nigeria to participate in the Pader project from the 28th of February till the 18th of March, 2018. The goal of the Pader project was to “reduce women’s vulnerability, eradicate poverty, increase food security and promote social and economic development” (UCOBAC – GLTN Partnership Concept Note). Responsibilities engaged by these VCSs in the project include:

- Giving advice on best practice of mapping contiguous boundaries;
- Advising and supporting data capture team members on the methods of spatial and attribute data acquisition and processing.
- Domesticating the STDM tool by developing a tool for generating distance labels for mapped parcels as required by the Ministry of Lands Housing and Urban Development (MLHUD) and process documentation.

The pilot phase of the competence-based VCSP was a success on many fronts. From exposing young surveyors to real-world problem solving to networking young surveyors with international organizations, all while achieving the fundamental aim of providing technical expertise to surveying projects. This paper gives a qualitative report and analysis into how land rights and security of tenure were strengthened in Pader district, Uganda under this GLTN/FIG

YSN Volunteer Community Surveyor program. The paper highlights experiences gained during the program, contributions made to the success of the project, recommendations, potential and established benefits of the VCSP.

3. THE PROCESS – METHODOLOGY

The Pader project used the Social Tenure Domain Model (STDM) developed by GLTN as an implementation of the Land Administration Domain Model (LADM) for land enumeration and mapping. The STDM concept recognizes the social tenure relationships that exist both between people, and between people and land. It exists as a free, widely used and open-source system for recording information about lands. Its key advantages include; affordability, flexibility, simplicity, participatory, responsiveness and transparency. STDM presents a new way of thinking, using and disseminating information on a continuum of land and property rights. Its core software components include QGIS (the most robust open-source GIS software), PostgreSQL to handle data and database management, and PostGIS for spatial analysis. The open-source QGIS software upon which STDM was built is a core advantage of the STDM approach, as it can be extended and adopted for different purposes.

Using the STDM software tool requires six basic steps for implementation:

1. Configuration – Creating and customizing data profiles by defining the nature of entities and their relationships in the database;
2. Defining Administrative Units – Set up a hierarchical structure for administrative units within the area to be mapped;
3. Data Input – Inputting party and parcel entities;
4. Defining Social Tenure Relationships – The process of defining the relationships between party and parcels;
5. Document Designing: – Designing the output format; and
6. Document Generator – Exporting a certificate, plan, report, etc.

Other functionalities include spatial unit management, attaching supporting documents and role management among others.

3.1 Community Sensitization

Awareness and sensitization conducted appropriately helps to empower people with the right information necessary to enlighten them on their relationship and rights to land (Decorte, Augustinus, Lind, & Brown, 2016). Before the Pader project exercise and during the implementation, the community, traditional authorities, local government authorities and land actors were sensitized on project goals and outcomes. The sensitization was conducted to educate the stakeholders on the importance of land registration, its impact on tenure security, food security and community development.

3.2 Training on land rights data capture and mediation team

Some training was carried out to sensitize the local government authorities on roles and responsibilities necessary for the successful implementation of the project. The training also taught the various land actors what roles and skills were necessary to aid the successful completion of the pilot project and how to continue the land registration project after the pilot phase expires. The training included the following groups:

- Members of the Pader District Land Board (DLB);
- Area Land Committee (ALC) members;

- Sub-county members;
- Data collectors;
- Local authority leaders;
- Elders of the community who had facilitators from senior representatives of the MLHUD of Uganda, UN-HABITAT/GLTN representative in Uganda, Project implementation team and the GLTN / FIG YSN Volunteer Community Surveyor (VCS).

3.3 Community Land Mapping

3.3.1 Land Rights Data Acquisition

The land mapping process comprises land rights data capture and data management. A total of 259 applications were attended to during the pilot phase of the Pader project. Between the 28th of February and 18th of March, about 150 applications were received and processed. The field data capture process was segmented by location for easy monitoring and assessment. Teams were deployed to different locations to avoid overlaps. The data capture team was made up of Area Land Committee (ALC) members and technical staff. The VCS joined any of the teams. While the ALC members and the technical staff concentrated on the spatial and attribute data capture, the VCS focused on process documentation and supporting the spatial and attribute data capture processes. Spatial and attribute data were gathered daily and stored on the computer system using their respective index numbers. The attribute data gathered were transferred from the Open Data Kit (ODK) mobile form collector to the computer system and exported into Excel format. Spatial data was also extracted from the handheld GNSS receiver devices. Respective attribute and spatial data were matched and stored for further processing on the computer system. The teams were taught the use of GeoODK collect during the data capture process. This way, spatial and attribute data can be captured using a single mobile device and other functionalities of GeoODK collect could be taken advantage of. Although the Pader project was titled “Strengthening Women’s Land Rights and Security of Tenure for all on Customary Land - Implementing Innovative, Pro-poor and Gender Responsive Land Tools and Approaches”, male, female, youths and the elderly were allowed to register their customary land under the project.

3.3.2 Land Rights Data Management

Appropriate links between parties and parcels profiled during the land enumeration processes were ensured using the unique numbers that relates every party or parties to the parcel(s). After ensuring the above, maps were made on orthophotos for technical staff to identify overlaps, and for the parties to identify and confirm the locations and extents of their parcels.

Making the final maps required conformance to the Ministry of Lands of Uganda requirements concerning Customary Certificates of Occupancy. One such requirement was that distances must be displayed on every boundary line that delineates parcels. The task required the customization of the STDM software to suit the requirements of the Ministry. The VCS built a boundary cleaning and distance label tool that was used in achieving the requirements of the Ministry. The distance label tool was built on the STDM model builder to automatically generate distances between lines and to label them.

3.4 Land Mediation

Some disputes arose and were mediated during the field data capture and data management phases of the project. Boundary overlaps, gaps, inconsistent boundaries and undefined boundaries are some of the reasons that necessitated land mediation between parties.

3.4.1 Boundary Overlaps, Gaps and Slivers

Boundary overlaps, gaps and slivers occurred during the field data capture process when contiguous parcels were mapped by different parties, when they were mapped more than once by the same party, because of the inaccuracies of GPS data used by different parties and because of oversights in the mapping of boundaries. The possibility of this was reduced by ensuring that contiguous boundaries were profiled once by the same party; such that a single line defines the boundary of two contiguous boundaries. Furthermore, when a parcel of land is to be profiled, the party claiming ownership is to ensure that owners of adjoining lands are present, to ensure that owners of adjoining parcels do not assume different points as boundaries and to guarantee transparency and acceptability. Distances to features identifiable on imageries and orthophotos were measured to aid accurate delineation of highly dense areas where smaller parcels were recorded and where overlaps were more prone.

Topology errors were identified using the “Topology Checker” tool of STDM software to ensure that except for cases where it becomes necessary to map overlapping claims, parcels are correctly delineated without overlaps. Figure 2 shows a screenshot of necessary overlapping claims between two parties and some slivers. Any unexpected overlaps identified during the spatial data pruning stage were adjudged by overlaying the parcels with freely available high-resolution satellite imageries or orthophotos of the area. However, data capture team members were advised to as much as possible obtain only a coordinate for points delineating contiguous boundaries to reduce such occurrences. Figure 1 shows a sample of overlap identified during the data pruning stage.

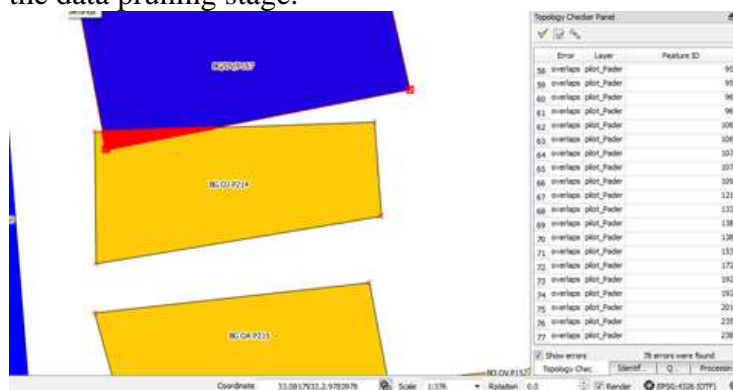


Figure 1: Contiguous Boundary Overlaps

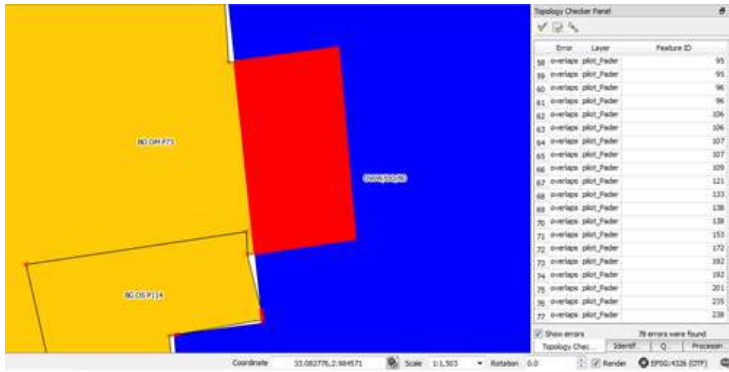


Figure 2: Overlapping Claims and Undershoots

3.4.2 Inconsistent boundaries

Overlapping claims from inconsistent or indeterminate boundaries were amicably resolved during the field data capture process. When the resolution is not accepted by both or either of the parties, the profiling of such areas are suspended and rescheduled until after a dispute resolution phase. The dispute resolution phase presided over by the Indigenous chairman of the Area Land Committee requires the presence of all involved parties, witnesses and stakeholders to aid amicable mediation and resolution. Figure 4 shows a land conflict resolution meeting taking place.



Figure 4: Land conflict resolution meeting

3.5 Process Documentation

Documentations in the form of text, pictures, audio and videos were made during the process. All recordings were made in a friendly environment with consent from those concerned. Text and pictures contained in this document are a product of documentations made

during the process. All recordings made were submitted to the coordinator of the project and the GLTN representative to Uganda. Opinions of parties, stakeholders and data capture team members were gathered on the implementation process, expected outcomes and benefits of the project to the community.

4. OUTCOMES AND DISCUSSIONS

The mapping of land rights in Pader district witnessed not less than 259 applications at the pilot phase, of which more than 150 applications were received during the 3 weeks volunteer period of one of the authors. With the assistance of the VCSP, the project achieved wide acceptance, credibility, and technical competence. The VCS supported the Pader project by assisting in the training of team members, participating and guided decision making during the field data capture process, land mediation, and process documentation.

4.1 Implications of the VCSP on Land Rights and Security of Tenure

The VCSP through the Pader project has made several impacts on land rights and security of tenure for the people of Pader and beyond. The VCSP supports the technical capacity required to ensure the security of tenure and land rights for the people. It supports the documentation of land and property rights by bringing documentation to the perceived and undocumented rights of people. This Pader project supported the mediation of land-related disputes by ensuring accessibility, affordability, completeness and transparency. The VCSP makes receiving support for unforeseen or complex related tasks faster than it would have been without the VCSP. One of such support is the distance labelling tool which was built for the project during the project execution. The program avails NGOs and other organisations seeking the technical expertise of surveyors in fast-tracking land registration and supporting the security of tenure. Matching competence with tasks reduces the risk of overkilling the situation at hand. A VCS available for a project can supervise several quasi-surveyors, thereby fast-tracking land registration by effectively utilizing a surveyor on several projects simultaneously. The approach also reduces the cost by placing problem-solving over profit-making. In the Pader case, quasi-surveyors with little or no knowledge were co opted and trained by professionals, including the VCSs and eventually were supervised by the VCS to execute specific tasks. Also, the VCSP helped to maintain quality execution of the fit-for-purpose (FFP) approach.

4.2 Significance of the Fit for purpose Approach

The FFP approach is vital for strengthening the security of customary and other informal tenures in the face of prevailing challenges. Challenges such as scarcity of competent manpower, scarcity of material resources, scarcity of financial resources to implement such projects, inflexibility of government policies and laws, ignorance, affordability issues, inefficient land and property right registration processes, and corruption, all require dynamic and resilient approaches (Ghebru & Okumo, 2016; Nwuba & Nuhu, 2018). The varying dimensions of legality and standardization characterized by customary tenure precludes a 'one-size-fits-all' approach or most conventional approaches. The FFP approach makes registration flexible and dynamic enough to accommodate the diverse rights over land. If the security of tenure must be achieved for all, the FFP approach must be adapted and wittingly managed. This approach lowers the risks of unaffordability, improves transparency, improves literacy, and supports the protection of the rights of the deprived. The dynamism of the FFP approach when implemented, allowed the land registration processes to be carried out without or with lesser

bottlenecks. Parties decided on how to register their land. In the Pader project, some chose to register in the names of their sons and some in the names of their wives, thereby giving room for the protection of rights for women, youths and invariably children.

4.3 Feedbacks from Participants and Stakeholders

Interviewed personalities include the Local Council representatives (LC), beneficiaries, community heads, Area Land Officers and Indigenous UCOBAC workers. The interviews that were conducted and the procedures followed show that the level of acceptance received during the project implementation was tremendous. This indicates that with some repetitive campaign, sensitization and awareness building, gaining institutional and societal acceptance will not be a problem for customary land registration, especially when Indigenes are knitted into the processes as per the Pader case. The project demonstrates the willingness of citizens to register land when land registration challenges are removed or reduced.

Land Dispute is a common challenge faced by people of Pader district. It was gathered that selecting Pader for the pilot phase was based partly on this factor. This fact was also corroborated by the interviewed beneficiaries and local government representatives that land disputes pose great challenges to the community. Beneficiaries identified that the land registration process facilitated by UCOBAC and its organizations will proffer solutions to their land-related challenges by safeguarding against land grabbing, reduction of land dispute and the preservation of inheritance rights by future generations, to mention a few. Interviewed government officials also applauded the efforts of the entire project team, and highlighted that their seemingly tedious responsibilities towards land are being simplified by the organization and that the process is bound to reduce land disputes, which forms a bulk of their assignment.

4.4 Benefits of the VCSP

The competence-based VCSP matches skills with problems, and positions young surveyors for problem-solving tasks. It gives participants first-hand exposure to land administration in an informal land tenure context and to other aspects of surveying. The exposure brought about by the VCSP positions young surveyors for work experiences that equip them with new skills while also contributing to causes beyond themselves. The use of the STDM tools advances the knowledge of the surveyor in the use of the FFP approach in advancing customary and other informal land tenure security. The program avails young surveyors the opportunity to relate directly with challenges that affect people. It creates an avenue for networking and expanding one's professional circle.

Solving and eliminating the challenge of scarcity of competent surveyors to solve surveying-related challenges to create a sustainable environment is one of the core goals of the FIG. The VCSP is an initiative that creates an enabling environment for solving surveying related problems faster without prejudice to accuracy and precision, as surveyors interact with quasi-surveyors or potential surveyors to educate and then supervise surveying related tasks. In the Pader context, most of the data capture team members had no prior formal surveying related education, most of which qualified as quasi-surveyors after the specific training acquired during the project implementation. Likewise, setting-up Young Surveyor Networks across nations can be fast-tracked when young surveyors already in the network interact with surveyors of other countries to initiate the network. In projects where surveying related tasks could have been wrongly done, the VCSP program has the potential to regulate and manage such tasks better than would have been without a surveyor.

The VCSP provides the technical support and supervision required to coordinate data capture and management processes. The VCSP provided field-based methods that created redundancies and aided the faster and better implementation of tasks. It as well makes domesticating the STDM tool to reflect specific needs easy as was the case of the Ministry of Lands and Urban Development when the distance label tool was designed to generate distances of lines adjoining parcels in preparation for certificates. The VCSP as well provides funding organizations unbiased, accurate and precise reports of project execution.

5. Conclusion and Recommendations

5.1 Conclusion

Participating in the VCSP at Uganda was inspiring and professionally rewarding. It was realized that with the effective campaign and dynamic involvement of key stakeholders such as NGOs, Government, Traditional authorities, and Professionals, insecurity of tenure can be eliminated and the rights of all especially women, youth and children can be protected and secured. The insecurity of tenure is still common in Africa because the security of tenure can be better addressed appropriately and adequately with suitable language that can be understood by the people. If this is done, access to land will be more easily secured for all. The VCSP avails land registration the technical expertise required to foster a gender-responsive and socially-inclusive security of tenure for all by providing the capacity required to support informal and customary land rights registration in the FFP perspective. The VCSP supports the fast-tracking of land registration and it is capable of reducing the size of undocumented lands drastically if the program is scaled up.

5.2 Recommendations

5.2.1 Strengthening Land Rights and Security of Tenure

The achievement of the 17 SDGs is dependent on the reduction of undocumented land. Fast-tracking registration of undocumented lands has become necessary because of the negative impacts of such undocumented rights on the land right holders. Reducing the number of undocumented lands and solving prevalent land-related challenges is strongly dependent upon the availability of a task-specific competent workforce amidst other factors, which is what the VCSP avails. If more professionals are available to foster a more socially inclusive society by fast-tracking land registration, or solving land-related problems, then the goals of the SDGs will be close to achievement if not achieved by 2030. To achieve the above, institutions and partners are encouraged to help the FIG YSN, through the VCSP, foster a more inclusive solution to land registration challenges, especially in the provision of task-specific competent professionals to solve land-related challenges.

Securing land rights and ensuring tenure security will require that the FFP concept is kept in perspective. While accuracy and precision are important for boundary delineation, especially in a future where land becomes more competitive, the need to fast-track land registration should not be jeopardized for accuracy and precision beyond necessary levels. Methods for spatial and attribute data collection should be kept open and flexible. The use of hand-held devices with near centimetre accuracy should be encouraged, and methods of automatic cadastral boundary extraction procedures should be introduced. Parties should not be denied the present advantages of land registration because of an unforeseen future, especially in the rural areas that are characterized with low competition for land and areas of customary and informal tenure

systems relative to the urban centres. Instead of keeping these areas in perpetual ignorance on the need to register land or the advantages of registering land, they could be registered, and then sensitized on the future need to re-document their land at a time when the already derived advantages would have been sufficient to capture the cost of re-documentation.

While expanding the technologies to aid FFP land administration, it is recommended to keep the surveyor at the decision-making point of determining what technology is appropriate for a particular situation. This need is premised on the need to leverage the best achievable result with the resources available. The choice of methods is required especially in places with mixed settlement patterns. After training, quasi-surveyors (para-surveyors) have been proven to fit properly into their specific tasks with little supervision. The inclusion of quasi-surveyors should be more encouraged to ameliorate the dearth of surveyors. Profit-making can only be maximized when impacts of relevance are known, not when a majority is ignorant.

5.2.2 Scaling-up the VCSP

Scaling-up the VCSP will sustain the current benefits of the program and as well extend the benefits beyond its current scope. The pilot phase of the program resulted in a win-win for organizations and young surveyors by succeeding in providing the technical expertise required for a socially inclusive society and as well contributing to the professional development of the VCS. Scaling-up the program will help to extend the benefits to other organizations, young surveyors and the society. Current initiatives of the FIG YSN to upscale the process will definitely improve the volunteering process and the benefits it avails. To ensure a successful upscaling, efforts should be jeered towards institutionalizing the process of volunteering. The adequacy of requisite training of volunteers should be supported and established. Trainings can be done through MOOCs and country-based workshops. More partnerships should be sought across institutions and organizations. Volunteers should be committed or supported to create documentations of their volunteering processes to improve subsequent processes and to take advantage of other benefits that documentation can avail.

REFERENCES

- Chigbu, U. E., Haub, O., Mabikke, S., Antonio, D., & Espinoza, J. S. (2016). *Tenure Responsive Land Use Planning: A Guide for Country Level Implementation*. Nairobi.
- Chimhowu, A. (2019). The 'new' African customary land tenure. Characteristic, features and policy implications of a new paradigm. *Land Use Policy*, 81(March 2018), 897–903. <https://doi.org/10.1016/j.landusepol.2018.04.014>
- Decorte, F., Augustinus, C., Lind, E., & Brown, M. (2016). *Scoping and Status Study on Land and Conflict : Towards UN System-Wide Engagement at Scale*. Kenya.
- Enemark, S., McLaren, R., & Lemmen, C. (2016). *FIT-FOR-PURPOSE LAND ADMINISTRATION: Guiding Principles for Country Implementation*. Nairobi.
- Ghebru, H., & Okumo, A. (2016). Land Administration Service Delivery and Its Challenges in Nigeria A case study of eight states, (December), 27.

- GIZ. (2016). *Land in German Development Cooperation: Guiding Principles, Challenges and Prospects for the Future*. (J. Espinoza, C. Graefen, M. Kirk, A. Seelaff, F. Thiel, & W. Zimmermann, Eds.). Bonn and Eschborn: Deutsche Gesellschaft für Internationale Zusammenarbeit (GIZ) GmbH.
- Hanstad, T. (1998). Designing Land Registration Systems for Developing Countries. *American University International Law Review* 13, 13(3), 647–703. Retrieved from <https://digitalcommons.wcl.american.edu/cgi/viewcontent.cgi?referer=https://www.google.com/&httpsredir=1&article=1358&context=auilr>
- Krigsholm, P., Riekkinen, K., & Ståhle, P. (2020). Pathways for a future cadastral system: A socio-technical approach. *Land Use Policy*, 94, 104504. <https://doi.org/https://doi.org/10.1016/j.landusepol.2020.104504>
- Lemmen, C. (2013). The Social Tenure Domain Model. *Fig Report*, 18.
- Lemmen, C., & Haile, S. A. (2009). The Social Tenure Domain model; A pro poor land rights recording system.
- Nwuba, C. C., & Nuhu, S. R. (2018). Challenges to Land Registration in Kaduna State, Nigeria. *Journal of African Real Estate Research*, 3(1), 141–172. <https://doi.org/10.15641/jarer.v1i1.566>
- Nyamweru, H. (2018, February 23). Volunteer Community Surveyor Program; strengthening capacity of implementing partners at country level | Social Tenure Domain Model (STDM). Retrieved July 4, 2020, from <https://stdm.gltm.net/volunteer-community-surveyor-program-strengthening-capacity-of-implementing-partners-at-country-level/#comment-1393>
- Palmer, D., Friccka, S., Wehrmann, B., Augustinus, C., Munro-faure, P., Törhönen, M., & Arial, A. (2009). *Towards Improved Land Governance*. Retrieved from <http://www.fao.org/3/ak999e.pdf>
- Quan, J. F., & Geoffrey, P. (2008). *Secure Land Rights for All GLTN contributes to the implementation*. GLTN. Retrieved from www.unhabitat.org
- Raab, M. (2017). *Gender-Responsive Work on Land and Corruption*.
- Sait, S., Peters, B., & Jonsson, A. (2011). *Designing and Evaluating Land Tools with a Gender Perspective: A Training Package for Land Professionals*. (R. Wagner & S. Freccia, Eds.). Nairobi: United Nations Human Settlements Programme (UN-HABITAT).
- Thontteh, E. O., & Omirin, M. M. (2015). Land registration within the framework of land administration reform in Lagos state. *Pacific Rim Property Research Journal*, 21(2), 161–177. <https://doi.org/10.1080/14445921.2015.1058033>
- Walters, L. (2011). *Land and Property Tax: A Policy Guide*. (R. Rollnick, E. Sorlie, R. Sietchiping, & P. Odhiambo, Eds.). Nairobi: United Nations Human Settlements Programme (UN-HABITAT).

Strengthening Land Rights in Pader District, Uganda with the Volunteer Community Surveyor Program (11113)
Israel Taiwo (Nigeria), Simon Mwesigye (Uganda) and Claire Buxton (Canada)

FIG e-Working Week 2021

Smart Surveyors for Land and Water Management - Challenges in a New Reality
Virtually in the Netherlands, 21–25 June 2021

BIOGRAPHICAL NOTES

CONTACTS

Israel Oluwaseun Taiwo

taiwo_io@fedpolyado.edu.ng; israeltaiwo@gmail.com

Surveying and Geoinformatics Department

The Federal Polytechnic, Ado-Ekiti

Ekiti State, Nigeria

Simon Peter Mwesigye

Simon.Mwesigye@un.org; mwesigyesp@gmail.com

UN-Habitat/Global land Tool Network

Kampala, Uganda

Claire Louise Buxton

clairelouisebuxton@gmail.com

Underhill Geomatics Ltd.

Burnaby, British Columbia

Strengthening Land Rights in Pader District, Uganda with the Volunteer Community Surveyor Program (11113)
Israel Taiwo (Nigeria), Simon Mwesigye (Uganda) and Claire Buxton (Canada)

FIG e-Working Week 2021

Smart Surveyors for Land and Water Management - Challenges in a New Reality

Virtually in the Netherlands, 21–25 June 2021