



Responsible Land Governance: Towards an Evidence Based Approach

ANNUAL WORLD BANK CONFERENCE ON LAND AND POVERTY
WASHINGTON DC, MARCH 20-24, 2017



LAND DOCUMENTATION IN ZAMBIA: A COMPARISON OF APPROACHES AND RELEVANCE FOR THE NATIONAL LAND TITLING PROGRAM

MATT SOMMERVILLE 1, IOANA BOUVIER 2, BWALYA CHUBA 1, JOSEPH
MINANGO 3

1. Tetra Tech, USAID-funded TGCC Program, Lusaka, Zambia
2. USAID
3. Surveyor General, Ministry of Lands, Zambia

jminango2002@yahoo.com

Paper prepared for presentation at the
“2017 WORLD BANK CONFERENCE ON LAND AND POVERTY”
The World Bank - Washington DC, March 20-24, 2017

Copyright 2017 by author(s). All rights reserved. Readers may make verbatim copies of this document for non-commercial purposes by any means, provided that this copyright notice appears on all such copies.

Abstract

Since 2014 Zambia has been preparing for the launch of a systematic land documentation process to increase tenure security, improve service delivery in informal settlements, rural areas and peri-urban areas, as well as increase tax revenue. At present over 80% of Zambia's landmass is held through customary tenure through the administration of traditional leaders. In peri-urban areas, particularly in Lusaka and the Copperbelt, demand for land is skyrocketing from the urban middle-class and its management has largely left customary traditional management. Finally, hundreds of thousands of individuals live in informal settlements, particularly in Lusaka with no land documentation, or with only occupancy certificates.

In this context, Zambia's Ministry of Lands has the intention to launch a National Titling Program. The Zambian government recognizes that documentation in a titling program may have to take multiple forms, depending if land is documented on customary or state land. Similarly, in the interest of cost and practicality, the government recognizes that different methods will be appropriate in different areas of the country.

To date, a number of national and international organizations have supported efforts to document land in Zambia, either through traditional authorities or alongside government. These efforts include activities funded by the Zambian Government, USAID, UN-Habitat, the European Union, Zambia Land Alliance members, Zambian Governance Foundation and through private sector business models. As practical experience grows in land documentation in Zambia in rural, peri-urban and informal settlement areas, there is a need to examine the tools and methods used to date and assess their applicability to the variety of challenges that government is facing in launching a national titling program that may cover 13 million people and 5 million hectares of land.

This paper examines the approaches piloted in Zambia on customary and state land documentation over recent years. It examines the hardware, software, data standards and processes associated with systematic documentation in Zambia, as well as the anticipated structures for long-term administration. For example, it examines the extent to which each process includes spatial data, data accuracy requirements, how each process validates field data collected through witnesses and key informants, and the structure of land certificates. The paper continues to consider how the approaches will have to be adapted in informal settlements, peri-urban and rural areas. While most of the land documentation experience in Zambia to date has focused on rural, customary chiefdoms, the most pressing need for documentation will be within the informal settlements and at the peri-urban interface of customary and state land. Within informal settlements, thirty year occupancy certificates allocated by the Ministry of Local Government and Housing have acted as documentation for tenure security though these records have been held entirely outside of the Ministry of Lands. In peri-urban areas around provincial capitals middle-class urban professionals have been flocking to acquire land from Chiefs, though this expansion has been ad hoc and unplanned, and many of these pieces of land have not been registered within the government records.

LAND DOCUMENTATION CONTEXT FOR ZAMBIA

Zambia has a dual tenure regime of state land under the administration of government and customary land, administered by more than 270 traditional leaders (Chinene, Maimbo et al. 1998). At independence in 1964, state land under leasehold tenure covered approximately 5% of the country's surface primarily along an economically significant corridor from the Copperbelt Province following the railway line through the capital of Lusaka and through Southern Province to Livingstone. An additional 10% of the country has been under direct state management as the national park system. The remainder of the land has been managed and administered by the traditional chiefdoms that have been gazetted at and since independence. In the 1970's, Zambia's first President, Kenneth Kaunda abolished freehold title and subsequently all titled land became state leasehold, however the divide between state and customary land remained clear. Since this time government and traditional leaders have lacked an effective way to share information on land and work off the same map for the purpose of planning and development. Equally chiefs lack clear and consistent mechanisms to share land information among each other or within their advisors or village headpersons. Finally, though leasehold titles rest with the Ministry of Lands, Natural Resources and Environmental Protection (Ministry of Lands) in Lusaka other government agencies have control and management responsibilities for significant areas of land, including Ministry of Agriculture, Vice President's Office, and Ministry of Local Government and Housing. These overlapping responsibilities have meant that the lack of land information has limited development planning and revenue collection.

In recognition of this challenge, the Ministry of Lands has launched a series of activities including:

- National Land Audit to take stock of current land uses and land information across the country,
- Zambia Integrated Land Management Information System (ZILMIS) to house all leasehold title records in a spatial database; and
- National Land Titling Program to systematically document all land parcels in the country. Over time government has clarified that titling would be the objective on state land, and some other form of documentation would be pursued on customary land.

Each of these activities would presumably seek to increase the availability of centralized information on land, which at present is limited and increases the risk of disputes over state and customary land classifications.

This paper explores the current pilot experiences with land documentation in Zambia and their relevance to the design of the National Land Titling Program. It first identifies the governance challenges associated with land management on rural customary land, peri-urban land and urban state land. This is followed by a brief overview of the National Land Titling Program and description of the study methodologies. The paper then describes the institutions carrying out land documentation processes and compares approaches across a range of characteristics such as: the documentation process; authorities and types of information collected; costs and scalability; and administrative structures. The paper finishes with a summary.

LAND MANAGEMENT CHALLENGES

Customary Land Challenges: The politics of land in Zambia reflect a struggle for power between traditional leaders on customary land and government on state land. Traditional leaders see their power and legitimacy emerging from their land and the subjects who live on customary land. Meanwhile, government often portrays customary land as underutilized. Chiefs are singled out for “selling” customary land, which by law does not have any value, though customarily a gift would be brought to chiefs. Similarly, the state has been accused of grabbing land from chiefs and then never fully developing it or not holding investors accountable. Given the one-way process for conversion of tenure from customary to state leasehold, chiefs see this as a gradual diminution of their power. In this context, there is both a desire on the part of chiefs to better know their land, but also a distrust of intentions on land documentation, fearing that land documentation is a first step towards alienation.

The 1995 Lands Act opened up a land administration controversy that lasts to today, allowing land to convert on a one way path from customary tenure to leasehold tenure (Tucker, 2014). Since this time, chiefs have argued that the conversion of customary tenure to leasehold tenure takes away their powers over subjects as those holding leasehold titles are reluctant to pay homage to the chief or follow his/her guidance, and that the chiefs have limited ability to hold those with leasehold title accountable for their investment promises. This conversion to leasehold process requires the consultation of any person with an interest in the land (via approval of the

chief), as well as the approval of District-level local authorities prior to registration and issuance of title by the Ministry of Lands, Natural Resources and Environmental Protection (Ministry of Lands). Nevertheless, many chiefs remain willing to alienate customary land either, in the interests over the state for proposed large-scale development, or potentially for personal gain. As a result, two of the outcomes of the 1995 Lands Act have been the establishment of pockets of land under leasehold tenure within a larger area of customary land, as well as a large, but unknown number of areas in legal limbo that have been approved by the chief and local authorities but never fully completed the title process with the Ministry of Lands. This second outcome is attributable both to efforts to avoid taxation (where the local institutions believe the land is on title, but the Ministry of Lands does not have records) and to the general difficulty of accessing land services to those living in rural areas, as titling requires multiple costly visits to Lusaka to follow up on claims over an undefined period of time. Private and communal landholdings on the remainder of the customary estate remain largely invisible to any national information system. Some chiefs, their advisors and village headpersons have been known to document allocations of land to newcomers to the chiefdom, though usually through an introduction letter rather than any spatially explicit delimitation of areas. Land conflicts are ubiquitous, though are generally handled at the local level through customary structures. These range from annual conflicts over field boundaries within and between families, to conflicts over the rights of settlers or non-residents in villages, to long-standing conflicts over boundaries between chiefdom and village jurisdictions. In four chiefdoms of Eastern Province, land conflicts were estimated to affect 26% of households over a two year period (Stickler and Huntington, 2015). Daily newspaper articles document issues occurring within local councils related to land allocations and overlapping claims, as well as allegations of government officials and chiefs benefiting from the land allocation process.

Large-scale government activities on customary land also have posed challenges, particularly in the case of farm blocks and resettlement areas. For example, in the development of farm block schemes areas are set aside in each province for national and international agribusiness to establish a core concession with smallholder and out-grower plots across a landscape of approximately 100,000 hectares. While these farm blocks have been established by the Ministry of Agriculture with the consent of the chief, the rights of previous occupiers of the land have not necessarily been considered, causing practical challenges for investors in identifying and dealing

with legitimate rights holders. Furthermore, as the farm blocks are settled by smallholders, it is anticipated that land will be documented under leasehold title, though in practice this has only occurred in limited cases and at a slow pace. In resettlement areas, developed under the Office of the Vice President to encourage rural development on “idle land” or to compensate families who have lost access land due to land acquisitions, large tracts of customary land may be opened up and planned for the establishment of smallholder farm plots in rural areas, and application fees collected, but these landholding through short-term occupancy permits are not necessarily converted to leasehold title or registered with the Ministry of Lands, creating an information gap in Zambia’s rural chiefdoms. The lack of documentation of landholdings in rural customary areas has led to numerous challenges, and has been blamed for limited investment in the forestry and wildlife sector, as well as acted as a barrier to investment in community land protection or establishment of development infrastructure like irrigation schemes.

Peri-urban Challenges: Zambia’s peri-urban areas face similar and perhaps more pressing challenges of land documentation due to the interface between state and customary lands. This differs somewhat between established urban areas like Lusaka and Copperbelt and municipal district centers across the country. In Lusaka and Copperbelt, there is a strong demand for urban middle-class to acquire farms of 5-100 hectares, as a side occupation to formal employment (Sitko and Jayne, 2014). These transactions often take place informally with village headpersons and may involve the local chief, particularly if conversion is envisioned. The number of these farms is unknown as many are never formally registered under the Ministry of Lands, but rather sit in an area of ambiguity having received approvals for conversion from chiefs and local authorities, but never completed the process in Lusaka. The new Land Policy envisions district level lands offices, which would theoretically allow for some registration services to occur here, but the precise modalities are not yet clear. Due to this large demand for land in peri-urban Lusaka, there are numerous cases of land disputes, as a portion of those acquiring land may not actively develop the land or establish clear boundaries through surveyors, leading to overlapping parcels, as well as odd shaped pockets or slivers of non-converted customary land within an increasing number of allocated farms. In contrast to this rush for peri-urban farms in Zambia’s larger municipalities and cities, the dynamics of Zambia’s smaller district municipalities are also posing significant land administration challenges. With decentralization there has been a focus on increasing the number of districts and associated municipalities, each of which includes

conversion from customary to leasehold tenure. These districts are increasingly responsible for generating their own revenue and promoting their own development, and the allocation of land becomes a powerful tool in this process. . While these actions require consultation with chiefs to convert customary land into state land, precise municipal boundaries are rarely defined on the ground and the rights of customary landholders may only be marginally consulted. So many of these landholders continue to manage their lands through customary practices, with limited knowledge of their evolving rights. Clarifying land rights in these peri-urban areas will be one of the most contentious elements of launching a land documentation process, as the underlying tenure regime (state leasehold or customary) is particularly ambiguous. This land also may be relatively high value, as those acquiring the land often have capital to invest.

Urban State Land Challenges: Urban areas pose both opportunities and challenges to a systematic land documentation process. The underlying tenure regime is unambiguous, as it is all state land with the opportunity for leasehold tenure, however the social dynamics of ownership and informal land transactions can overwhelm a process. The urban state lands pose a challenge of initially auditing the full set of information on existing leasehold titles (and other forms of land documentation) to avoid allocating duplicate or overlapping titles. One area that has not been documented significantly and thus allows for a systematic approach, is the informal settlements, locally known as “compounds.” These areas of low income housing are largely managed by local councils who, through the Ministry of Local Government and Housing, are able to issue occupancy certificates. Many perceive these occupancy certificates to be strong enough documentation of land ownership. The recent process of developing an Urban and Regional Planning Act considered whether the occupancy certificate approach should be eliminated in preference for a single title document, but ultimately the occupancy certificate persisted. Urban informal areas offer a significant opportunity for rapid demarcation of many parcels, however, untangling social relationships and legitimate land owners in these compounds will be particularly challenging.

NATIONAL LAND TITLING PROGRAM

The Zambian government recognizes the enormous lost revenue base from insufficient collection of ground rents. At the same time, many of these landholders are purposefully taking advantage of the loopholes to stay under the radar of the formal system. Even though customary land is not

expected to be taxed for the foreseeable future, government and both local and international investors see the lack of a legal land market as a barrier to domestic growth.

Since government announced the National Land Titling Program there has been some evolution of the program to adapt to the needs and desires of the chiefs. The Zambian government recognizes that documentation in a titling program may have to take multiple forms, depending if land is documented on customary or state land. Initial indications were that the program would cover the whole country (both customary and state land), and that a single title would be issued. Subsequent discussions suggested that the titling program could cover the whole country, but have two different forms of documentation for state and customary areas. Finally in late 2016, government clarified that the process will only focus on state land. Nevertheless, land documentation on customary areas is still envisioned under the draft Land Policy and is expected to be elaborated on in a forthcoming Customary Land Administration Bill. The design of a titling program in Zambia will also be significantly influenced by the status of customary land and the authorities of traditional leaders. Similarly, in the interest of cost and practicality, the government recognizes that different methods will be appropriate in different areas of the country.

To date, a number of national and international organizations have supported efforts to document land in Zambia, either through traditional authorities or alongside government. These efforts include activities funded by the Zambian Government, USAID, UN-Habitat, the European Union, Zambia Land Alliance members, Zambian Governance Foundation and through private sector business models. As practical experience grows in land documentation in Zambia in rural, peri-urban and informal settlement areas, there is a need to examine the tools and methods used to date and assess their applicability to the variety of challenges that government and chiefs are facing in launching a national titling program that may cover 13 million people and 5 million hectares of land. While most of the experiences in Zambia to date on systematic land documentation have occurred in rural customary areas, there are lessons that can be applied and adapted to the urban and peri-urban pilots.

A land documentation process is only likely to be as strong as the administrative procedures that keep the certificates up to date, and as a result these local level structures for updating and registering rights over the long-term need to be considered before embarking on a broader

documentation process. A titling program on state land and a land certification/documentation process on customary land is no panacea for Zambia's land sector challenges, as there are other approaches that could generate revenue more quickly. For example, government could increase tax revenue substantially through improving efficiency of ground rent collection and ensuring that the existing high value land is properly appraised and documented. **Methodology:** This study builds on a simple questionnaire of process, technology, and institutional and administrative elements that was carried out in late 2016 with the institutions that have been supporting land documentation processes in Zambia. Analysis focused on similarities and differences between the methodologies and whether there is emerging consensus on appropriate elements of approaches. Finally, a workshop was held among the institutions in early 2017 to discuss the analysis and identify how the programs may support government and traditional leaders going forward on systematic land documentation on different types of land.

REVIEW OF EXPERIENCES

Summary of Institutions

The organizations implementing the land documentation work in Zambia have primarily been civil society non-profit institutions working with donor funding, with the exception of Medeem, a private sector social entrepreneurship company that has developed custom built software and processes for land documentation (Table 1). Two of the organizations, Petauke District Land Alliance and Chipata District Land Alliance work exclusively in a relatively small region of the country, while the other organizations have a broader reach. Some of the institutions had been working with the chiefs and community beneficiaries prior to the land documentation work. Only Medeem's work is presented as the sole/primary engagement of the organization in the chiefdom or communities. These existing relationships are extremely useful for the success of the work, as each has encountered mistrust from certain members of the communities.

Lessons on Institutions: The current organizations working on land documentation are ideal local facilitators of process on rural and peri-urban land. As trusted intermediaries, they have ability to engage both at the chief and community level and dispel any misunderstandings on the objectives or outcomes of the process. While an organization like Medeem does not have these existing links, they have developed a strong communications program, particularly with Chiefs, to build an understanding from the top down to gain acceptance. That these organizations are not

working at the explicit behest of the government provides some advantages in customary areas. A more explicit link with government would be welcome on resettlement areas and urban locations, as residents are likely to understand the government responsibilities in these areas. Regardless, these third-party trusted intermediaries will be an important piece of any systematic documentation process on urban, rural or peri-urban areas.

Table 1: Institutional summary of customary land documentation activities in Zambia.

| | Chipata District Land Alliance (CDLA) | Petauke District Land Alliance (PDLA) | People's Process on Housing and Poverty in Zambia | Medeem | Zambia Land Alliance (ZLA) |
|---|---------------------------------------|---------------------------------------|---|---------------------------------|-------------------------------|
| Number of beneficiaries | 33,079 (persons of interest) | 30,000 (landholders expected) | 85 | 20,000 | 1,137 |
| Number of Districts | 1 | 1 | 2 (Chibombo and Chisamba) | 4 | 1 |
| Number of chiefs | 5 | 1 | 2 (Mungule and Chamuka) | 12 | 1 |
| Number of communities | 134 | 306 | 8 (7 in Mungule and 1 in Chamuka) | Multiple | 7 |
| Area mapped | 43,379 ha | ~180,000 ha expected | 8 Villages | Many | 0 ha |
| Area certified | 16,484 ha | ~30,000 ha expected | | | |
| Number of Parcels | 6,305 | 15,000 (expected) | 40 | 4,000 | |
| Urban, rural or peri-urban | Rural | Rural | Rural | Primarily Rural | Rural |
| Who facilitates the work on the ground | Chipata District Land Alliance | Petauke District Land Alliance | Zambia Homeless and Poor People's Federation (PPHZ) | Medeem Zambia Ltd. | Nyimba District Land Alliance |
| Who funds the certification process (donor or user) | USAID | USAID | UN-Habitat | Customers pay for the documents | OSISA |

Documentation Process

Mapping: The inclusion of a mapping component to household certification is costly and the justification for not undertaking household mapping in Nyimba includes the sustainability of locally managed certificates with maps (Table 2). A non-spatial register can arguably be kept up-to-date and generate certificates at the chiefdom level or with basic computer skills that are present in every district in the country. The skills for generating and updating maps, as well as for managing data, on the other hand require a much higher technical capacity. Each of the local CSOs undertaking mapping had specialized international technical backstopping to support the development and piloting of household certification. If the process were brought to scale by government, there would be a need for technical backstopping during the preparation and documentation phases. However, the longer-term data management and updating of spatial

records will also require consistent localized backstopping that could be difficult to deliver across Zambia's Districts.

Nevertheless, maps were used in four of the five pilots, and these were seen as an important element to government and other stakeholders both from a digital and a paper perspective. Local communities appreciated the availability of village or chiefdom level maps to orient their village parcels, while chiefs and government were most interested in the uses of digital layers.

DRAFT

Table 2: Overview of the process and tools in Zambian land documentation processes

| | Chipata District Land Alliance (CDLA) | Petauke District Land Alliance (PDLA) | People's Process on Housing and Poverty in Zambia | Medeem | Zambia Land Alliance (ZLA) |
|---|---------------------------------------|---------------------------------------|---|--|----------------------------|
| PROCESS | | | | | |
| What boundaries are collected? | | | | | |
| Household | Yes | Yes | Yes | Yes | Yes |
| Village | Yes | No | Yes | Optional | No |
| Shared Resources | Partial | Yes | Yes | Optional | No |
| Points of interest | No | Yes | Yes | Optional | No |
| Chieftdom | No | Yes | No | Optional | No |
| District | No | No | No | Optional | No |
| | | | | | |
| TOOLS | | | | | |
| What hardware is used | | | | | |
| Tablet | Yes | Yes | No | Yes | No |
| Computer | Yes | Yes | Yes | Yes | Yes |
| Paper forms | Yes | Yes | Yes | No | Yes |
| What software/hardware configuration is used for data collection | Open Data Kit with bluetooth GPS | Open Data Kit with bluetooth GPS | Handheld GPS | Medeem proprietary software | Handheld GPS |
| Proprietary or open-source | Open Source | Open Source | Purchased | Proprietary | Purchased |
| | | | | Agreement with Medeem or partnership agreement | |
| Type of License | NA | NA | NA | | NA |
| What mapping software is used | QGIS, Postgre DB | QGIS, Postgre DB | STDM with QGIS | Proprietary with ArcGIS | NA |
| Is it spatial | Yes | Yes | Yes | Yes | No |
| What GPS system is used | Garmin Glo - Bluetooth GPS | Garmin Glo - Bluetooth GPS | Garmin 64s handheld GPS | Survey grade | Handheld GPS |
| What level of accuracy is expected | 1.5m | 1.5m | | Survey grade accuracy | |
| Can parcels be drawn on paper and digitized | Yes | Yes | Yes | Yes | |
| Can parcels be drawn on tablet computers | No | Yes | No | Yes | |
| Can boundary points be taken | Yes | Yes | Yes | Yes | |
| | | | | | |
| Number of visits to finalize certificates | 7 | 5 | 3 | 2 | 3 |
| Time between first visit and certificate delivery | ~500 days | ~400 days | 60 days | 3 days | 60 days |

What to Map: In Petauke, community members were asked whether they would like to complete the work at the village or shared resource mapping level, but almost universally, households preferred the mapping of household and family land, indicating the central importance of individualized certificates. While all four of the mapping pilots sought to collect parcel level boundaries, two of them make additional mapping processes as optional.

Village Boundaries: The DLA processes explored opportunities for mapping village boundaries, shared resources, and points of interest. The initial justification for these boundary maps was to ensure that households were not claiming excessive land outside of their area of interest. However, this posed some problems as many villages have mixed fields or non-contiguous areas of land spread across a landscape. While there is no legislation that says that villages have to be a single block of land, numerous conflicts emerged from the process, as headpersons began opening up latent disputes over mixed fields and processes that were used to acquire various plots of non-contiguous lands. Subsequent attempts to build village boundaries from individual claimants have also brought about disputes regarding the rights of non-residents to register claims. Ultimately, walking village boundaries in rural mapping is unlikely to be a viable approach in the Zambia context due to the time and effort required. Building ground-up village maps from household data may be viable but will require increased outreach to ensure that community members understand that land is being mapped and certified based on its administration not based on the owner's village of origin. Within peri-urban areas, these village boundaries may be particularly important as allocation of land by headpersons to investors with or without the chiefs knowledge is a major driver of insecurity and there is an incentive for headpersons to extend their reach. As an alternative to mapping village boundaries as an area of jurisdiction for land administration, most chiefdoms have area advisors to chiefs (*indunas*), and this scale of mapping and authority delineation may be feasible, though the area indunas will still need to monitor the actions of the individual headpersons. Within the urban land documentation environment, the mapping of jurisdictional boundaries is not likely to be particularly necessary.

Shared Resource and Point of Interest Mapping: Each of the spatial mapping approaches applied in Zambia has the ability to integrate processes for mapping points of interest and shared resource polygons. The DLA processes found these to be useful to build an understanding of the landscape prior to household certification both for community surveyors and for the community themselves, however they require one or two additional visits to each community or areas. In particular, since most of the household mapping occurs on agricultural fields, it provided an estimate of the area of agricultural fields that are likely to be mapped across the chiefdom, which also allowed the team to identify the relative amount of resources and time likely to be required in any given area. Mapping of resources can be effectively done through land use classification without visiting each individual village, however, this approach loses the ability to ask resource

tenure questions over who manages each resource and where the internal management boundaries begin and end within a resource. These resource tenure questions, regarding whether each resource is privately managed, community managed, communally managed or open access can be used as a future basis for registering community forest or communal resource rights among villages, as these options emerge in Zambia's legal framework.

Land-use classifications or shared resource mapping prior to land documentation also provide a logical basis for land-use planning. And while all households should be able to register their legitimate claims, this mapping prior to household mapping, may identify areas that may be contested and may not be open to private tenure, for example next to major roads, in streams or wetlands. The use of such maps in the field can help to raise awareness with community members of these potential limits.

In addition to shared resource mapping, basic infrastructure mapping is possible in all platforms and is likely to be particularly useful in rural and peri-urban processes. Systematic documentation of boreholes, cellphone towers, health clinics, schools, government buildings, agribusiness and financial institutions, electricity connection and other development infrastructure will help chiefs, local elected officials and others advocate for their needs with government. While much of this information exists on various layers in government databases, they are rarely placed on a single map or accessible in a single location. Thus taking advantage of systematic land documentation to collect broader spatial data is an important feature of a holistic approach.

Parcel mapping: Household parcel mapping has been made possible by the availability low cost mapping technology including high accuracy GPS as well as high resolution satellite imagery. Four of the five approaches use parcel mapping as a central feature of the certification process. Three of these rely primarily on boundary point walks. Only the DLA approach uses a drawing and then digitizing approach alongside boundary walks. The DLA approach assumes that most boundaries will be visible on a high resolution satellite imagery and that the added accuracy that is acquired from the boundary walk GPS points is not worth the increased effort of walking boundaries. This drawing on a map approach relies on the concept of "general boundary principles," which uses lines on a map as a general interpretation but not a legally defined line (Harwood, 1996). The DLA process assumes that if the land becomes valuable and worth a

formal survey then the owners of the land could pay to increase the accuracy of the map. The DLA process allows for integration of boundary points where the maps do not show a clear boundary. The boundary points are then combined with a drawing on the map. In all mapping processes used, some effort is required in the office to connect the points to create a polygon. Automated software exists to do this and it can be done by drawing polygons the tablet map for both the DLA and Medeem approach. Drawing polygons on a tablet was ultimately deemed too variable, as the width of a finger interjects significant variation into the points. The DLA approach allows for drawing on a physical map, a subsequent scan and georeferenced and finally digitization. These approaches are particularly viable for rural areas and likely peri-urban areas. In urban area however it is likely that boundary points may be preferable, as in some cases beacons may already exist. The Ministry of Lands has acquired high resolution imagery for the cities that is well georeferenced and so this process should be tested alongside boundary point collection. City parcels may well be more easily collected by boundary points as they tend to be smaller plots with fewer barriers than walking through the bush, where drawing a line can save a 45 minute boundary walk.

Technology: The four institutions doing spatial mapping are using three different platforms for the certification process, each with their own advantages and disadvantages. Medeem's proprietary software is well adapted for large-scale roll with a fully integrated process that can be modified to include additional steps or outputs. People's Process deploys the Social Tenure Domain Model (STDM) an open source data platform developed by the Global Land Tools Network to document a variety of formal and informal rights. It is designed to be fluid and allow for overlapping rights with a goal of documenting all relationships between people and land. The STDM plugin is built on top of open source software, QGIS and PostgreSQL, for mapping and database management. The tool is frequently updated with new capacities. Similar to STDM, the DLA model is built on top of PostgreSQL and QGIS, however without a set user interface, requiring more programming experience to manipulate the data during a large volume/systematic phase of certification and produce certificates. A web-based user interface allows for updates to individual certificates and visualization and searching of all parcels. All of these tools can be used for systematic data collection during a registration process in either an urban, peri-urban or rural environment. The main challenge is with respect to longer-term data management and the appropriate platform within government or with chiefs. Medeem's software is compliant with

Zambia's Integrated Land Management and Information System (ZILMIS) to manage state leasehold titles, while both the DLA and PPHZ outputs would need to be modified. Future meetings may be held with government to discuss how these outputs can be amended. Furthermore, if Chiefs are going to manage data at the chiefdom level with technical support provided by CSOs or government planners, then additional assistance may be needed both in terms of standards and preferred platforms for customary land, preferably harmonized by district or tribe to allow for more easy consolidation of data. The type of information collected could be based on the needs and information in the National Spatial Data Infrastructure.

With respect to paper-based and digital data collection, the DLA process and Medeem both collect all personal and parcel information on tablets, though the DLA also provides paper receipts to the land claimant and to the village headperson/village land committee. DLA's approach has proven to be robust and includes four sets of documentation in case of questions (digital record, household receipt, village receipt and carbon copy).

From a mapping perspective, Medeem and PPHZ rely primarily on boundary walks of each individual parcel, which though accurate can increase the time for documentation dramatically. DLAs use both boundary walks and drawings on high resolution (1:1750 and 1:3000) A3 maps. The DLAs explored options for drawing directly on tablets and smartphones and while possible, the accuracy of the drawings was not deemed viable. At present a mixture between boundary walks and drawings on clear boundaries presents the most appropriate approach. In order for this to be accepted by the surveys department, however elements of the Surveys Law will need to be amended in order to accommodate these changes. It is important to note that the georeferencing and timing of imagery that is used in this process will be critical. Many of the high resolution satellite imagery that can be acquired commercially provides great resolution but the imagery may be offset by up to 10 meters, which will cause challenges when digitizing against boundary points collected by high accuracy GPSs. The Ministry of Lands acquired in 2015 and 2016 high resolution aerial photography of Zambia's cities, though this will soon be out of date due to the dynamic changes of urban landscapes.

Number of Visits: The cost of undertaking a land documentation program is directly related to the number of visits required to finalize documentation. At the same time, additional visits play an important role in building acceptance of the process, resolving conflicts and ensuring that all

members of the community have a chance to register their lands. Furthermore, the number of visits is highly dependent on whether the process is strictly focused on household parcel mapping or has a broader mandate of collecting information on infrastructure or shared resources.

While all of the pilots welcomed full participation and systematic mapping, only the DLA work actively sought out all members of the community and landholders to join the process and build consensus on data collection and mapping. This is because the DLA used physical basemaps to attempt to obtain complete coverage of all parcels of all agricultural land within the area. Few of these estimates of number of visits considered the impacts and required visits to address disputes or to make changes to certificates. Each of these visits can be extremely costly, as they tend to be “one-off” visits. Approaches to consolidate follow up appointments are needed. In order to better understand the tradeoffs that come with reducing the number of visits to any community a study of outcomes and community understanding of the process would be beneficial. While the principle of number of visits holds in peri-urban and urban areas remains the same, reduced travel costs and the density of parcels are likely to make this less of a concern. The low number of days to produce a certificate through Medeem is reflective of the spot certification process, whereby an individual requests a specific service. The longer-times associate with DLAs and PPHPZ reflect an attempt to systematically register parcels across a large area and to engage in a process of objections and corrections.

Authority and Certificates

Authority, Sign-off and Delivery: While the current documents that are produced in the five pilots are not legally recognized as proof of ownership by government, they have been used as evidence in the courts of customary landholding (Table 3 and Table 4). They have also reportedly been used as proof of residence with the national electricity company, and as proof of land access to justify short-term agricultural loans. Despite these uses, the question of who approves the documentation work to go forward, and who signs off on certificates and

Table 3: Characteristics of land certificates among land documentation pilots.

| | Chipata District Land Alliance (CDLA) | Petauke District Land Alliance (PDLA) | People's Process on Housing and Poverty in Zambia | Medeem | Zambia Land Alliance (ZLA) |
|--|---------------------------------------|---------------------------------------|---|--|---|
| Certification | | | | | |
| Who are certificates signed by | | | | | |
| Chief | Yes | Yes | Yes | Optional | Yes |
| Headperson | No | No | Yes | Optional | No |
| Local committee | No | No | No | Optional | Yes |
| Surveyor | No | No | No | Yes | No |
| Government | No | No | No | Optional | No |
| CSO | No | No | No | Optional | No |
| How are certificates delivered | CSO delivers to village | CSO delivers to village | Collected by beneficiaries at the palace | Certificates are delivered to the Chief and end user | Collected by applicants from central places that are overseen by Chief's advisors |
| Conditions placed on the certificate | Yes | Yes | Yes | | Yes |
| Who can register? | | | | | |
| Individual | Yes | Yes | Yes | Yes | Yes |
| Household | Yes | Yes | Yes | Yes | Yes |
| Extended family | Yes | Yes | Yes | Yes | Yes |
| Companies / institutions | Yes | Yes | No | Yes | Yes |
| Certificates available for only some types of land | All land | All land | Individual land parcels | All types of land | All types of customary land |
| Names on the certificates | All landholders | All landholders | All persons with a claim to the land | | Individual landholders (joint holders are possible) |
| How are inheritors identified | Separate sheet | Separate sheet | Yes | Yes | Yes, persons of interest are named |
| Personally identifiable information on certificates | Age, NRC, Gender | Age, NRC, Gender | Yes | Yes | National Registration Number and Vilage |
| Maps on the certificate | Yes | Yes | Yes | Yes | No |

administration remains one that each approach takes differently. Approval from the chief is a prerequisite for all activities on land tenure within customary land and the Zambia Land Alliance, District Land Alliances and PPHZ all seek the chief's signature on each certificate. Medeem leaves the acquisition of the chief's signature (and all signatures) up to the certificate holder. The volume of certificates produced during household documentation imposes a burden on chiefs for signatures, which in the case of DLAs has taken over one year for chiefs to complete the signing process. Additionally both in the DLA and in PPHZ chiefs who were initially supportive of the activity pulled back at the final stage of certificate signing, wary of the implications of signing. With this in mind, the Medeem approach creates the opportunity for a certificate holder to get the signatures of a variety of stakeholders, including headpersons, local

authorities, witnesses, chiefs and surveyors. This presents some flexibility in the process. The DLA and ZLA approaches on the other hand use the process to document the headperson's agreement with the outcome. Thus the chief's signature represents the agreement from the headperson, indunas and local witnesses. The production of certificates without signatures creates significant cost savings, though processes that would allow for virtual signatures to be applied or digital reviews of bundles of certificates will be more practical for a mass-documentation effort.

Delivery of certificates is also a challenge. In Rwanda, certificates were sent to district land offices, and as a result years later at least 20% of certificates have not been claimed (DFID, 2015). The DLA approach delivers certificates to village headpersons following signing, while the ZLA approach delivers certificates to area representatives or Land Committees. There is a significant danger in each of these cases of certificates not reaching the intended destination. Sign off sheets become one way of ensuring that certificates are properly distributed though these pose a logistical challenge once brought to the field. As with the question of site visits, this is likely to be the largest challenge in rural chiefdoms, while peri-urban and informal settlements may be relatively more easily achieved. The collection of phone numbers and contact details becomes a useful tool, as well to promote delivery.

A final question of authority is particularly important in peri-urban areas, where parcels of state and customary land will be heavily mixed. The DLA approach has allowed the chief to sign off on parcels that are state land or that are perceived as state land (though may not have yet received title). As a result an individual may have both a customary land certificate and a leasehold title on the same property. In the DLA and Medeem work this has occurred and is used by those with state leasehold to argue that they have increased their tenure security in both the eyes of government and traditional leaders. There are traditional leaders even in areas of primarily state land, such as along the line of rail and in the Copperbelt, who have very little customary land under their control, but who still retain cultural, law enforcement and conflict resolution roles.

At present government has noted that the national titling program will not be carried out on customary land. However, this could pose huge additional costs, should a customary land documentation approach be adopted, as in the peri-urban areas they would be covered twice. An integration of the programs may be necessary that allow for the documentation of customary tenure, leasehold tenure, and leasehold tenure in process.

Evidence: The customary land documentation processes that have been piloted in Zambia rely almost exclusively on witness-based evidence, as well as the judgements of customary land administrators, the village headpersons. These are documented in most of the cases by the recording of witnesses to demarcations and the subsequent signing or record keeping by the village headperson, which are stored in the database. Evidence on state land is more complicated, as individuals are likely to have some form of paper evidence, whether it is the letter for

Table 4: Authorities and roles of institutions in the land documentation processes.

| | Chipata District Land Alliance (CDLA) | Petauke District Land Alliance (PDLA) | People's Process on Housing and Poverty in Zambia | Medeem | Zambia Land Alliance (ZLA) |
|---|---|---|---|---|---|
| AUTHORITIES | | | | | |
| Who provides primary permission for the work | Chief | Chief | Chief | Chiefs, Councils and any customary or local authority | Chief |
| Who are the secondary permissions/counterparts | Village headperson | Village headperson | Village headperson | Village headperson | Village headperson and neighbors |
| Role of government | Limited | Collaboration on Ukwimi resettlement area | Policy guidance and regulations | Collaborator, particularly licensed surveyors and local authorities | At present, no official role |
| Role of chief | Authorized all work and sign certificates | Authorized all work and sign certificates | Oversight of traditional customs | Active authority and signs off on documents | Gives consent to the certificate and issues documents |
| Role of village headpersons | Part of village land committee | Central focal point | Mobilization of community and guides village boundaries | Active in the process | Gives consent at the village level |
| How are conflicts identified | At every stage, lodged and mapped. | At every stage, lodged and mapped. | Community dialogue sessions with traditional leaders and community, decided by Palace Committee | Unique ID, and solved with local authorities, individuals, neighbors and Medeem | Headpersons and area indunas report to the Land Allocation Committee on any conflict. |
| Is there an objections process | Yes | Yes | | No | Yes |
| Is there a role for witnesses | Yes | Yes | Yes | Yes | Yes |
| Does this target vulnerable populations, including women, youth and disabled | Yes, in that all are encouraged to register | Yes, in that all are encouraged to register | Yes | Yes, majority | Yes, deliberate approach to support women |

conversion, occupancy licenses or a title. Others may wish to use utility bills as evidence of a long-term right. Peri-urban and urban documentation will need to incorporate these records into their processes, which is already possible within the current STDM approach. Even in rural areas, where there are records of historical farms or where there is a farm block, integrating this evidence-base into certificate applications should be an option.

Conflicts and Objections: Systematic documentation of rights can be slowed down significantly by conflicts and objections though each process needs a system to flag these issues and address them outside of the systematic documentation process. Each institution had mechanisms for objections and refused to support certification of contentious parcels. However, the most appropriate approach to register and record objections is not clear. The approach of leaving a map in the community was not adequate for the community to self-administer corrections. However, it was also not cost-feasible for the future to place extension agents in a community or chiefdom to administer corrections.

Each of the approaches on customary land seeks to allow communities to identify and address conflicts prior to demarcation in order to promote a rapid process. Equally, parcels that overlap with a conflict area will not be certified, until resolved, though if at all possible they will be demarcated in the field. To date the DLA process has been able to support resolutions in only about 1/3 of the cases it encounters. In part this may be due to the fact that they need to refer most cases back to traditional authorities to decide on outcomes.

In peri-urban and urban areas, government has a stronger role to play in conflict mediation. As a result, though local CSOs and private companies may undertake the data collection and field enumeration work, there will need to be approaches for formal conflict resolution and grievance mechanisms. Significant advance efforts will be required to prepare for the types of conflict that may emerge.

Costs and Scalability

Cost to Landowner: The cost of customary documentation process and certificate generation varies dramatically among the different pilot activities (Table 5). In the case of fully donor funded efforts of the DLAs, the cost is free as all off the implementation is covered through USAID. In the other ZLA implemented activity the costs are set by chief as a signing fee, but also to cover the cost of printing and laminating certificates. Only the Medeem model reflects a market-based willingness to pay for the surveying and certificate generation. This Medeem model is also not inclusive of any administrative fee/gift that an individual might have to pay to have the chief review and sign the certificate. A systematic approach designed to secure tenure across the whole country on customary land will have to balance individuals' willingness and ability to pay for a document that does not have a proven track record and the fact that some portion of the process would likely be paid through a development grant or loan. On state land, the costs are established, though it is possible that a systematic approach could result in a reduced cost for elements of the process.

Table 5: Characteristics of costs and scalability associated with land documentation pilots in Zambia. In general the costs of the different approaches are not easily comparable because the package of training and development differ and are dependent on the scale of implementation.

| | Chipata District Land Alliance (CDLA) | Petauke District Land Alliance (PDLA) | People's Process on Housing and Poverty in Zambia | Medeem | Zambia Land Alliance (ZLA) |
|--|--|---|--|--|--|
| Level of skill required | University trained and community members | University trained | University trained with community para-surveyors | University-trained professionals and community agents | Community members trained by ZLA |
| What is the cost per parcel (range estimate) | ~\$80-\$100 | ~\$15 per parcel; ~\$30 inclusive of resource mapping | \$10 | Less than \$25 (dependent on community cluster and size of land) | \$15-50 depending on the size of the land |
| Costs are inclusive of (site visits, collection of data, objections period etc.). | Full costs due to impact evaluation and design of system | | Data collection and administration | Inclusive of everything | Yes, costs include application fees, interview fees, printing and laminating costs |
| What is the cost to the user for maintenance | \$0 (at present) | \$0 (at present) | \$0 | \$0 | \$0 |
| Who pays the costs of certification? | USAID | USAID | Landholder | Landholder | Landholder (subsidized by DLA) |
| Who are the costs paid to? | - | - | Chief and local STDN committee for administrative purposes | Medeem, local agents or local authorities | Lands Allocation Committee at Chiefdom level |

Scalability of Documentation Process on Customary Rural Land: Each of the spatially explicit methodologies could be scaled to full chiefdom level, with limited adaptation of the software and/or process. Each would need to expand on the conflict documentation activity, outreach and communication, and in standardizing an objections period. Government and/or chiefs would need to clarify common elements of the methodology including the extent to which village boundary, shared resource and point of interest mapping occurs. Harmonization of the system/approach at some spatial scale will also be necessary, whether at the district or province level.

Adaptability of the Processes to Peri-urban Areas: The main difference and challenge posed by adapting these rural processes to peri-urban areas is the challenge of working on both state and customary land and the increased likelihood over overlapping claims due to inadequate information availability. One could apply a customary focused process across the whole peri-urban/non-state land area and have a module that allows for titled land to be captured in the same process based on the existing evidence base. Managing expectations, avoiding speculation and land rushes and logistical challenges of coordinating claims from people who often do not live on the property are particularly difficult. To address this issue, district-level offices could be established for people who have existing evidence to partially lodge their claims prior to field demarcation.

Adaptability of the Processes to Urban Areas: The STDM model is designed for documenting urban level rights, however it may push to collect too much information that is not directly relevant to generating the information for the National Titling Program. Given the high degree of accuracy required for the titling program in urban areas, Medeem's high accuracy GPS unit may be most appropriate for point collection. The Ministry has expressed an interest in using paper maps and digitization for this process, which the model used under the DLA could provide examples for. Urban areas may also rely heavily on site plans that were initially approved by planning authorities, however, there will need to be provisions to consider the changes that have occurred over the years within these informal settlements. In peri-urban areas, the process of conflict resolution and identifying the legitimate owner will be very important since there has been a high degree of informal land transactions.

Administration

A systematic land documentation process over the course of a number of years is primarily a large-scale logistical challenge following agreement on a socially and politically legitimate process. Many of the technical details for documentation have been demonstrated in the pilots above and are common to all methodologies. The longer-term issue that will make these efforts worthwhile is the administration of the certificates and associated information. In the end, a right is only as strong as the institution behind it (Meinzen-Dick & Pradhan, 2001). Each of the pilots is in an early stage of proposing and trialing administrative system. As a result, the lessons are still open ended and the diversity of approaches makes it clear that there is not convergence on a solution, particularly as it relates to rural and peri-urban customary land administration.

Questions remain with respect to what type of information is left at the local, district/regional, national levels; how accessible transactions and changes to information are for local landholders; and the accessibility and reliability of the data. Customary and state land have completely separate administration systems and so the functioning of each system needs to be considered as well as communication and transparency between the two systems. Experience from Rwanda has demonstrated that while people may be aware of rights recognition and documentation processes, it can be difficult to get community members to use these structures (Biraro et al., 2015).

Urban State Land: State land is administered through the Ministry of Local Housing and Government and the Ministry of Lands and systems are in place to handle land transactions and updates to leasehold titles. It is clear that given the volume associated with a systematic documentation campaign, a program management unit will need to be established to generate titles. Additional resources will also be required to handle updates and changes to titles and their transfer. In 2013, an estimated 14,700 new titles were generated bringing the total titled records to 141,625. If state land leasehold titles are pursued systematically, there could be upwards of one million titles. The management of this increased volume of tax payments, transfers, etc. has the potential to deadlock the Ministry. This is particularly the case for low income currently informal settlements, as there are likely to be tens of thousands of titles, but each of a low value which could distract from the more valuable properties. These updates can be pursued, but it is clear that an overhaul of systems and new staff will be needed to process the increased volume of work. The state has committed to developing District Land Offices (currently, they are mostly only present at the Provincial level), however their role on customary land is not clear.

Table 6: Administration characteristics of land documentation pilots in Zambia.

| | Chipata District Land Alliance (CDLA) | Petauke District Land Alliance (PDLA) | People's Process on Housing and Poverty in Zambia | Medeem | Zambia Land Alliance (ZLA) |
|--|--|--|---|--|--|
| ADMINISTRATION | | | | | |
| Data policy on data management | No | No | Yes, undocumented | Yes | No |
| Links to existing registers | No | Limited | Yes | Yes | Yes (village registers) |
| Links to government or international platforms | Plans with National Spatial Data Infrastructure (NSDI) | Plans with NSDI | No | Not at present | No |
| Is the data openly accessible to anyone | Yes (through web portal) | Yes (through web portal) | Not yet | No | Yes (but has to be local) |
| Infrastructure at the local level | Village register and village maps and phones for reporting; chief has a tablet | Village register and village maps and phones for reporting; chief has a tablet | Village register, village computer, GPS, cameras | Dependent on local institution, soft and hard copy | Village registers |
| Who manages the data | CDLA | PDLA | NGO, community STDM team and Palace Committee | Medeem | Lands Allocation Committee with Technical support from DLA staff |
| How is the data updated | Team of community surveyors | Team of community surveyors | Upon request | | Entered directly into a computer and chiefdom register |
| Who do households go to for non-spatial updates to certificates | CDLA | PDLA | STDM team | Medeem via local community agent or authority | Procedure is on certificate: can register claim with nearest agent of the chief, or be brought directly to the Land Allocation Committee |
| Who do households go to for spatial updates (e.g. parcel division, boundary change) | CDLA | PDLA | STDM team | Medeem via local community agent or authority | Lands Committee will need to visit the location and update the changes in the chiefdom register and computer-based register |
| Which actors are involved in the administration of parcels | CDLA, headpersons and chief (Chief has a tablet for monitoring) | PDLA, headpersons and chief (chief has a tablet for monitoring) | Village headpersons and Palace Committees | Medeem via local community agent or authority | The Lands Committee |

Rural Customary Land: The volume of potential parcels is one reason why Zambia would be best placed to let rural customary land continue to be managed by local customary authorities.

The FAO estimates that inclusive of rural land, Zambia may have 10-15 million parcels of land

(Evtimov and Muzyamba, 2013). To add these low value plots with landholders who are unable to pay ground rents could increase tenure insecurity, distract from revenue collection in the urban areas, and lead to distressed sales and consolidation of land. As a result, a customary tenure register or cadaster with some form of standardization is probably the most viable structure to develop for rural customary land in Zambia. Considerations of paper versus digital records and how and where these records are kept will be discussed below.

Peri-urban Land: Land administration will be the most challenged in peri-urban spaces where the land markets are dynamic, conversion is common, and there are numerous semi-converted parcels of land. In these chiefdoms the biggest administrative system need is an accessible map that bridges state and customary land. Such a mapping platform that has both state leasehold parcels and customary land parcels could be hosted on Zambia's National Spatial Data Infrastructure (NSDI).

Digital vs. Paper Registers and their Location: Within customary land documentation, the format and location of registers will be important to pilot to determine what is sustainable. The pilot activities have trialed approaches from an excel workbook to an open source spatial database to proprietary database. The concept of a village land register is widely used across the pilots, but is most relevant where there is a systematic approach to mapping or recording rights of the whole village. In all cases these registers are paper-based, and reside in the village. In a few cases, a register is produced from the digital records that were collected during the documentation process, while in others, paper records were recorded in the village at the same time that demarcations and registration of claims were taking place. While a printed record ensures that the data is mirrored between the database and the register, a hand-written register places ownership in the hands of the community. The DLA's second pilot in Petauke is exploring options for an initial printed register followed by hand written updates to the register.

Organizations also struggled with the decision of whether to build the land register off of the legally mandated Village Register. An ideal, best practices approach would take all of the names of community members so that there is a database table of names and a database table of parcels which are linked through a relationship. However, in practice this proved difficult, not the least because landholders are frequently not resident in a particular village. While all promote the use of a Village Register, the need for a land register that focuses on recording each piece of land

(not each person) may be more viable. One clear benefit of using a Village Register is that the proportion of community members without parcel ownership could be determined. Two efforts have attempted to bring the digital database to the community level. The PPHZ approach leaves a computer with community engagement officers in the village who act as a committee to update the STDm. This however is reliant on access to power in the villages (though most chiefs' palaces have been provided with electricity (and some phone connectivity). The DLA approach has provided each Village Land Committee with a feature phone (not smart phone) that would allow them to search the database of landholders (non-spatial). This feature relies on a platform used by Zambia's Ministry of Health, the District Health Information System Version 2 (DHIS2), and could allow for continued multi-sectoral monitoring of development indicators by village, however this would require multi-sectoral commitment, as well as a commitment to responsiveness of authorities (either state, customary or CSOs) to the requests and reports from households and local communities. Given the scale of the documentation and administration challenge, keeping records at an area induna level or the chiefdom level may be the most viable approach, as these could arguably be checked and updated periodically and are not too far for community members to access. This is also the level in the customary system where disputes would often be resolved.

Within the peri-urban chiefdoms there is a strong need for records to be kept and mirrored (at least from the spatial parcel perspective) at both the chiefdom and the district level. While chiefs may be reluctant to turn over maps and data to the district level, it has the potential to reduce future conflicts. This data sharing could be done for example through a web platform, which is a feature of the DLA work and Medeem work and could be adapted from the STDm approach of PPHZ.

The DLA approach has made both the maps of landholdings and the parcel database available through websites with open access maps of shared resources, parcels and village boundaries and the parcel database only accessible to Chiefs and administrators. This should allow the NSDI to periodically replicate the spatial database and make it accessible to users.

The official register should presumably be the one that is updated most consistently, and this is likely to reside at the chief's palace or in a customary land administration office at the chiefdom or ward level. This register should be visited periodically to make sure it has been updated and to

make changes into the digital records. A particular challenge is that some updates (particularly those around persons of interest and landholders) can be changed within the book itself, while others require technical skills of mapping and digitization.

Transactions and Changes: With every death, birth, divorce, marriage and family decision to migrate into or away from a chiefdom or clear new land, a transaction is expected. As a result, from the first day of delivery the register is out of date and the administrator of the information needs tools to ensure that the digital and paper records mirror one another. Non-spatial certificates thus offer a technically easier administration solution, as records could be updated and pushed out through a single spreadsheet with relatively little technical training. However, households and government appreciate the spatial elements of the certification process. Protocols are needed for:

1. Lodging and responding to applications to change a certificate, subdivide a parcel or change boundaries;
2. Entering this information into one or more paper register and entering into a digital record;
3. Updating and printing new certificates; and
4. Delivering or retrieving certificates.

Within the ZLA and PPHZ the skills to update certificate rest within the chiefdom and thus these can be done locally. With the DLA and Medeem, specialized skills are required and updates are handled by technical officers. The sustainability of each one of these approaches needs to be examined. Similarly, none of the pilots are yet charging for administration of the certificates. These will eventually be needed to cover printing and travel costs. Prices will likely vary primarily on travel costs. An added challenge of transactions are to define the role of the chief, and whether he or she will approve each transaction. The Village Headperson or committee are implied to have signed off on the transactions as they will be the holders of the application form. Requiring a chief's signature or approval before the transaction can be processed will pose logistical challenges and burdens on the chief. One approach that the DLA is attempting is to make the chief aware of all applications through an online platform that will allow the chief to weigh in on individual cases, but to assume that applications are successful and should be processed and printed, unless they hear otherwise.

With the certification process being relatively new in Zambia, there is a need to test different administrative models on customary land, and significant investments made to increase the land management capacities of chiefs, induna and headpersons.

SUMMARY

This paper tracks the experiences of five pilots in Zambia to document rural customary land rights and examine their applicability to rural, peri-urban and urban environments. It finds a great deal of harmony in the processes and tools of each of the platforms with respect to mapping and type of information collected for household mapping. Most had tools to document other boundaries and points of interest in each chiefdom though did not necessarily apply them. The costs and time associated with each process were not necessarily comparable due to the different funders and the scale of the efforts from 80-8,000 households.

Particular challenges were identified in terms of adapting the existing approaches to peri-urban and urban land documentation. Urban areas will likely need a stronger conflicts and adjudication process to better understand legitimate rights and weigh evidence, while peri-urban areas require a carefully collected set of basemaps to differentiate between state land, customary land and land that has been partially converted to leasehold tenure. The administration of state land in urban areas has an existing procedure to follow however there is a potential that tens of thousands of low value properties could distract the Ministry from collecting revenue from the high value properties that are already on the records. Additionally, the need to establish District level lands offices needs to be evaluated as some districts will have very small areas of municipal lands and relatively small number of properties to administer. With respect the peri-urban, areas the challenge of transparent documentation of customary and state lands and the process by which both traditional leaders and District Councils and local government and collaborate and communicate is important. Peri-urban chiefs have the most to fear in terms of their chiefdoms being converted to state land, however they also need to work with government to better define and understand the role of customary authorities in areas of state lands.

In contrast to peri-urban and urban lands, where the documentation process poses significant challenges, the largest challenge facing customary lands in rural chiefdoms is the long-term administration, and the costs of keeping records up to date. The existing pilots will need to spend more efforts to identify sustainable administrative approaches to keeping systems simple, but

still transparent, accessible, and cost-effective. As a result, key lessons remain to be learned including:

- Where should land records be administered from?
- Who should be involved in the approval of changes to customary land certificates?
- How can records be made accessible to communities, government and traditional authorities to avoid conflict and double allocation of land?

As Zambia embarks on a Land Policy, a National Land Titling Program and potentially a customary land documentation process there will be a need to customize approaches to both documenting land tenure rights, as well as handling the long-term administration of these rights. As government prioritizes this process, it should be remembered that first time documentation is not the only way to increase revenue. Indeed, the rationalization and functioning of the existing system should be considered prior to introducing hundreds of thousands to millions of new parcels into a land administration system. Nevertheless, from a tenure security and revenue collection perspective documentation of peri-urban chiefdoms may be the most pressing challenge. However, this will also be exceedingly difficult as there are many overlapping boundaries and many of the landholders are purposefully avoiding documentation. Urban mapping and rights recognition of informal settlements will be an important process. However, it needs to be recognized that these are very dynamic environments that it will be difficult to collect ground rents from. Unfortunately, there is likely to be a correlation between the areas where there is the greatest threat to tenure security and where costs and difficulty of undertaking a documentation process will be highest.

REFERENCES

- Biraro, M., Khan, S., Konguka, G., Ngabo, V., Kanyiginya, V., Tumusherure, W., and Jossam, P. (2015). Final report of study on the access to the land tenure administration system in Rwanda and the outlines of the system on ordinary citizens. Kigali, Rwanda: USAID LAND Project.
- Chinene, V. R. N., Maimbo, F., et al. (1998). A comparison of customary and leasehold tenure: Agriculture and development in Zambia. *Land Reform, Land Settlement and Cooperatives*(2): 88-99.
- Department for International Development (DFID). (2015). DFID Land Tenure Regularization Programme Annual Review – 2015.
- Evtimov, V. and Muzyamba, F. (2013). National Land Audit Technical Scoping Mission Report. For Ministry of Lands Natural Resources and Environmental Protection. FAO and World Bank Cooperative Program.

Harwood, M. (1996). *Conveying Law and Practice: Second Edition*. London: Cavendish Publishing Limited.

Meinzen-Dick, R. S., & Pradhan, R. (2001). Implications of Legal Pluralism for Natural Resource Management. *International Development Studies Bulletin*, 32(4), 10–17.

Sitko, N.J. and Jayne, T.S. (2014). Structural transformation or elite land capture? The growth of “emergent” farmers in Zambia. *Food Policy*. 48: 194-202.

Stickler, M. and Huntington, H. (2015). Perceptions of Tenure Security: an Exploratory Analysis of Pre-Treatment Data in Rural Communities across Ethiopia, Guinea, Liberia and Zambia. Presented at World Bank Land Conference 2015. Accessible at: https://www.land-links.org/wp-content/uploads/2016/09/Perceptions_of_Tenure_Security-Ethiopia_Guinea_Liberia_Zambia.pdf

Tucker, T. K. (2014). *Contemporary Challenges of Customary Land Administration in Zambia* (Master Thesis). Dalhousie University, Halifax, Nova Scotia.

DRAFT