Fit-for-purpose' land digitization in Uganda: Beyond the tenure security argument

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Abstract: Uganda's land sector, like many countries on the African continent and in the Global South is faced with the new reality of digitization in an era of information technology. Following the pro-market neoliberal land reforms undertaken in Uganda since the 1990s, there has been a strong focus on digital land administration in the last decade, from around 2015. This paper contributes to the discourses around land reform and use of digital technology in land registration. The digitization taking place in the land sector has occasioned notable shifts[1] in the dynamics shaping land reform and land registration in Uganda. This paper delves into the details shaping these shifts within the politics of land registration in Uganda and contributes to discourses on the politics of land reform, land registration, land governance and the adoption of emerging digital technology, presented as a solution for overcoming obstacles to land registration. The paper argues that the digitization of land in Uganda caught the Ugandan state unprepared for the challenge and is contributing towards one of the neoliberal goals of diminishing the role of the state in public affairs. While the neoliberal land reforms of the 1990s sought the put the state at the center of controlling land registration through the legal reforms, the contemporary digitization process has initiated processes that obliterate the role of the state as land registration/digitization processes take place outside the realm of the legal regime and digitized land documents are processed and issued by mainly the private sector and NGOs, rather than the state. In the language of "good land governance" the *fit-for-purpose* initiative of land digitization is presented as an opportunity for improving tenure security in a context perceived to be having tenure insecurity resulting from the predominance of unregistered customary land tenure. This one-way presentation of digital technology as a solution shields it from being seen as generating other forms of land inequality and other undesirable implications that may arise from such initiatives, as discussed in this paper.

Key words: Land, Administration, Datafication, Formalization, Digitization, Fit for Purpose, Customary.

Introduction

Thematically, this paper contributes to the discourses around land reform and use of digital technology in land registration. It has been about three decades since the adoption of a neoliberal market land reform in Uganda, occasioned by the 1995 Constitution, operationalized by the 1998 Land Act and consolidated by the 2013 National Land Policy. In these decades, there have been notable shifts in the dynamics shaping land reform and land registration on several fronts. There has been a shift from sporadic to systematic land registration; there has been a shift from demand

[1] These shifts are highlighted in the introduction of this paper

driven to project driven land registration; a shift from radical resistance to assumed acceptance of land registration by rural communities; a shift from self-financed land registration to donor funded registration; a shift from use of conventional survey methods to adoption of digital technologies in the "fit for purpose" land registration approaches; a shift from manual to digitization of land records; a shift from exclusion to inclusion of customary land records as a key part of the National Land Information System (NLIS); a shift in the role of traditional NGOs driving debates on the land question in Uganda to being campaigners of awareness raising for fit-for-purpose land registration, the insertion of Information Technology (IT) and geospatial companies into the field of land registration, the displacement of professional surveyors as front liners in the field of land mapping by rural, less-skilled youth, among other emerging shifts.

This paper delves into the details shaping these shifts within the politics of land registration in Uganda and contributes to discourses on the politics of land registration, adoption of emerging digital technology as a solution for overcoming obstacles to land registration. The paper argues that the digitization of land in Uganda caught the Ugandan state unprepared for the challenge that come with a digital transition, and digitization is contributing towards one of the neoliberal goals of diminishing the role of the state in public affairs. While the neoliberal land reforms of the 1990s sought the put the state at the center of controlling land registration through the legal reforms, the contemporary digitization process has initiated processes that obliterate the role of the state as land registration/digitization processes take place outside the realm of the legal regime and digitized land documents are processed and issued by mainly the private sector and NGOs, rather than the state. According to Pfeir et al., digitization in the context of land has gained momentum in several countries of the global South, usually funded by international agencies with a strong focus on land administration (digital mapping, digital registries and cadasters and digitized land transactions)[2]. The adoption of emerging digital technology in land registration processes in Uganda has been termed as "***fit for purpose***" land administration[3]. The use of technology has not only transformed and revolutionarized the land sector in Uganda, but technology has tremendously affected all aspects of contemporary society.[4] Increased digitization has altered how business[5] is conducted and also enhanced access to and dissemination of information as well as provision of public services[6] in sectors like health, education, justice, among others. In Uganda, like in most parts of the world, the land sector has not been spared by the technological wave. Besides the increasing internet penetration[7] in the country, advances in geospatial technologies and systems, the advent

[2] Mathias Pfeifer, Phillp Seufert, Astrud Lea Beringer, Roman Herre (2020) Disruption or Déjà vu? Digitization, Land and Human Rights, FIAN INTERNATIONAL
[3] Ministry of Lands, Housing and Urban Development (2023) Guidelines for integration of spatial data for certificates of customary ownership and certificates of occupancy into the Uganda National Land Information System, Department of Surveys and Mapping, Kampala
[4] Christian Matt and others, 'The Digitization of the Individual: Conceptual Foundations and Opportunities for Research' (2019) 29 Electronic Markets 315.
[5] James TC Teng, Varun Grover and Kirk D Fiedler, 'Business Process Re-engineering: Charting a Strategic Path for the Information Age' (1994) 36 California Management Review 9.
[6] Ida Lindgren and others, 'Close Encounters of the Digital Kind: A Research Agenda for the Digitalization of Public Services' (2019) 36 Government Information Quarterly 427.
[7] Uganda Communications Commission, 'Market Performace Report 1Q22' (2022).

of *fit-for-purpose* land administration has brought to the fore the power of digital technologies in transforming land governance.[8] Digital technologies are used for mapping and demarcating land parcels and the information obtained is "stored in digital registries and cadastres"[9].

In the language of "good land governance" this initiative of *fit-for-purpose* land digitization is presented as an opportunity for improving tenure security in a context perceived to be having tenure insecurity resulting from the predominance of unregistered customary land tenure. This one-way presentation of digital technology only as a solution shields it from being seen as generating other forms of land inequality and other undesirable implications that may arise from such initiatives. The papers shows that the ongoing digitization of land in Uganda is a donor driven initiative, with the state playing only a minimal role of enabling its advancement. The paper also shows notable changes brought about by the shift towards the use of digital technology in land formalization, and analyzes the implications and contestations that are emerging from these initiatives, specifically the question of data protection since the digitization initiatives encompasses the generation of massive personal data from the populations living in the rural areas of Uganda, by foreign companies in a context where the Uganda state is not in control of where exactly such data ends up.

The politics of land reform in a historical perspective

In her seminal work analyzing the politics of land reform in Africa, Manji (2006) highlighted the influential work of the Peruvian economist Hernando De Soto (2001) on the question of formalization of land rights as a bedrock upon which capitalism would grow in countries outside the West, in shaping how bilateral donors and International Financial Institutions from the Global North descended on Africa in the 1990s to formulate land laws that would institute pro-markets reforms on land. Manji (2006) termed this process as the neoliberal land reform. This new wave of pro-market reforms around land in Africa sought to break communal-customary forms of tenure and create free markets in land (ibid). The neoliberal move to create land markets in Africa runs against the background that land, – specifically customary land- in Africa during the colonial period was not a subject of the market because it was used both for petty commodity production but also acted as a means of subsistence production for the peasantry (Mamdani 1996).

Before the neoliberal land reform was set in motion in Africa in the 1990s, there have been four main waves of land (and agrarian reforms) that have taken place in several countries around the world since the beginning of the 20th century. These land reforms fall under categories such as; radical land reforms, redistributive land reforms, tenurial land reforms, market-led land reforms, state-led land reforms and peasant-led land reforms. They took either legal approach or political (revolutionary) approaches (Moyo and Yeros 2005, Moyo, 2008 and Manji, 2006). The first wave of land reforms were redistributive in nature because land was transferred from the landed

[8] Simon Hull and others, 'An Overview of Frontier Technologies for Land Tenure: How to Avoid the Hype and Focus on What Matters' (2022) 11 Land 1939.

[9] FIAN International, 'Digital Technologies Cut off Access to Land' (*Press Release*, 2021) <https://www.fian.org/en/press-release/article/digital-technologies-cut-off-access-to-land-2699>.

oligarchies to the peasantry, examples include; the state-led colonial land reforms of the early 20th century, as in Buganda explored in the next paragraph, present our chronology with a puzzle, for its mode of 'redistribution' reversed this order, the land reforms which took place in China in 1949, Cuba in 1950s and the East Asian countries of Japan, Taiwan and South Korea (Moyo and Yeros 2005, Chun 2015). The second wave of land reforms took place between 1946-1959 under "imperial auspices" in countries such as Egypt, Iran, Bolivia, Philippines, Guatemala, Kenya and Algeria but these reforms were repressed due to the aim of securing the reproduction of peripheral capital and cannot be fitted within the category of redistributive reforms (Moyo and Yeros, 2005). The third wave of land (and agrarian) reforms took place in Latin America and was inspired by the Cuban revolution that forced the United States of America to institute (a controlled) land redistributive reform, amidst resistance from the local ruling classes. But shortly in the mid-1960s, United States shifted its agrarian policy away from land redistribution towards social and technological modernization; this marked the beginning of the shift from radical land redistribution to passive land and agrarian reforms. This passive approach to land and agrarian reform was exported to other parts of the world; to Northern India during the launch of the green revolution in the 1960s, and to Africa but it shortly met strong resistance from the anti-colonial armed resistance of the national resistance movements (Moyo and Yeros, 2005).

From the 1960s when most states in the global South had become independent, they undertook state-led land reforms that were not necessarily redistributive but aimed at attaining national autonomous development (Moyo 2008, Moyo and Yeros 2005). For the case of Uganda, initial land reform was occasioned by the 1900 (B)Uganda Agreement in which land belonging to Buganda peasants was allocated to chiefs who collaborated with the British to colonize Uganda at the turn of the 20th century, this led to the creation of landlords and tenants (Mamdani 1976). After that, Mamdani (1976) and Nabudere (1980) show that colonial government policy in favour of "progressive/capitalist farmers" begun in the late 1940s and was concretized by the 1955 recommendation of the Royal Commission which encouraged a land policy for the spread of private land registration in all parts of the country. This policy *"was most successful in Kigezi, where 7,000 private freehold titles were issued after independence*" (Mamdani, 1976:230). After independence, it was Amin's 1975 land reform decree which was most fundamental in the sense that it converted all other land tenure systems into a government leasehold but its effect has been a subject of debate. While Nabuderee (1980) and Bazaara (1993) argue that this decree led to widespread customary land alienation and a renewed era of landlordism, Mwebaze (2002), Lunyiigo (2007) argue on the contrary, showing that extent to which this land policy was implemented was limited. Because of the limited extent of implementation of both the colonial land policy and Amin's 1975 land reform decree in favour of land registration and growth of a capitalist agricultural class, land in Uganda therefore remained predominantly unregistered until it was recognized for the first time as customary land in the 1995 Constitution.

Generally, due to economic decline, political instability, neocolonialism and general failure of the independence promises in the countries that had attained independence in the 1950s and 1960s, the national development projects went into a crisis in 1970s and collapsed, opening the door for neoliberal reforms led by globalization institutions such as the World Bank and International

Monetary Fund (IMF) under the Structural Adjustment Programs (SAPs) (Berry 2002, Moyo and Yeros 2005). The collapse of the developmental state agenda also marked the beginning of the fourth wave of land reforms, the neoliberal market-led reform which begun in the 1970s and was spread to Africa, Asia and Latin America through SAPs in the 1980s. The 1990s marked yet another watershed moment in the land reform agenda with the neoliberal land reforms of the 1990s revived the land reform agenda by the World Bank (Moyo and Yeros 2005). This World Bank land reform program made Uganda, like other African countries, adopt its neoliberal land reforms in the 1990s (Manji, 2006). According to Moyo and Yeros (2005), this approach to land reform follows the neoclassical economic doctrine, which seeks to establish individual title within communal, indigenous and collectivized state-owned lands. This neoliberal market-led approach shifted land reform away from the redistributive approach because it sought to redistribute land through the market, but this approach has been noted for its failure to achieve any meaningful land redistribution (Moyo 2008). According to Manji (2006) therefore, the neoliberal land reform of the World Bank only seeks to institute *tenurial* and not *redistributive* land reforms.

Critics of De Soto (2001) and his wide following of International Financial Institutions and bi-lateral donors debunked some of the assumptions and arguments advanced for the formalization of property rights of the poor in non-Western countries as a magic bullet to transform these economies from backward to modern capitalist economies. De Soto argued that poor people already possess assets but the assets needed to be turned into capital so that it is not held in "defective forms", i.e., used as an asset, collateral and as a 'share against investment' "(De Soto, 2001:6). Thus, poor people's non-documented properties are dead capital and this requires formalization with the aid of an efficient legal structure (de Soto, 2001: 7).

African thinkers such as Manji (2006) and Musembi (2007) immediately emerged and disapproved De Soto's land formalization theories. Manji (2006) argued that de Soto's argument for the formalization of land and property rights was a way of bringing poor people to participate in the market economy and "institutionalize capital" within the rural economies of third world countries rather than strengthen land rights. Musembi (2007) also argues that de Soto's theory revives the neoclassical theory of property rights formalization and ignores the negative lessons learnt from earlier land titling and formalization experiments around Africa. To argue her case, Musembi (2007) provides several points against de Soto's formulation. First, the concept of legality considers only formal legality and ignores the contribution of the informal sector. She argues that property rights cannot only be restricted to formal legality because informal property relations is an "enduring feature" even in developed countries, and that formal titles always co-exists with social institutions. Secondly, Musembi (2007) argues that formalization of property rights reproduces the social evolutionist and the classical theoretical bias which associates formal private ownership of land as a marker of civilization and progress. The evolutionary land reforms recognize communal tenure with the view that it will eventually be transformed to individual tenure, which is a more "progressive form of tenure" (Manji 2006, Musembi 2007). Third, Musembi (2007) argues against the assumption that formal land titles lead to access of credit and consequently improves economic growth and development, she argues that there is no link between formal land titles and access to credit, especially for the case of smallholder farmers.

Fourth, Musembi (2007) uses empirical evidence to refute the assumption that formalization of property rights in land promotes a "formal land market" and that all land is viewed as "commodity", she argues that land has other social features which undermines the view that private landowners are absolute owners and can dispose off the land as they wish because social institutions put restrictions to land commodification. Finally, Musembi (2007) dispels the assertion that formalization of property rights in land leads to security of tenure. She shows that land titling actually enables the dispossession of the less powerful members of the society, for example it can undermine the customary land rights of women when the formalization process considers the male family members as absolute owners. Contrary to the neoliberal prescription of formalization of land rights and use of state law as a means of improving security of tenure for vulnerable people such as women, Ossome (2014) Classens and Sindiso (2009) argue that it is customary law that is more flexible towards protection of women's land rights in many parts of rural Africa.

Regardless of the critical scholarship in response to the neoliberal land formalization agenda, land formalization has continued unabated on the African continent and in its various forms. One of the main and new drivers of the formalization agenda on the African continent and specifically in Uganda is the emergence of digital technology in an era of information technology. If the conventional ways of land formalization championed during the colonial and immediate post-colonial period had been unsuccessful in formalizing Uganda's land to the extent that currently more than 80% of the land remains unregistered, this paper shows how the emergence of digital technology has inserted itself as an immediate solution to the problem of lack of land registration. In order to understand the ultimate role of digital intervention in the contemporary formalization of land and property rights, it is important to situate it within the (appropriated) Marxist conception of neoliberalism where Harvey (1990) describes the neoliberal phase of capitalism as characterized by flexible accumulation, that involves the emergence of new sectors of production, financial services, markets, and increased commercial, technological, and organizational innovation. He notes that this has led to rapid shifts in uneven development patterns, such as service-sector employment and new industrial ensembles in underdeveloped regions (ibid). In effect, flexible accumulation under neoliberalism has engendered the international division of labour, global expansion of the communication systems, weak labour regimes and service sector led development. It is on this basis that some studies have conceptualised the neoliberal moment of the capitalist system as an era of financialisation (Lapavitsas, 2013) and digital capitalism (Fuchs, 2020), as an era of production of digital economies (Pfeifer et.al 2020); with some concluding that the privatization of the internet by America and China's big tech companies has led to the death of capitalism and set in motion in a new era of technofeudalism (Varoufakis 2023). The mutation of capital into "cloud capital" has occasioned the death of capitalism by demolishing the two main pillars of capitalism - markets (replaced with digital trading platforms) and profits (replaced with rent)- (Varoufakis 2023:xii). The new form of rent has to be paid to access these digital platforms – "*cloud rent*"- and it is not the traditional owners of capital in control, but *cloud rent* is paid to a new class of feudal overlords – the owners of *cloud capital* – and "the rest of us, we have returned to our former status as serfs, contributing to the wealth and power of the new ruling class with our unpaid labour" (Varoufakis 2023: xiii). Whether or not the assertions made by Varoufakis about the emergence of a new class of feudal overlords charging "cloud rent" is something to worry

about the future of the Ugandan peasants whose land and personal data is being digitized *enmass* in the ongoing land datafication and formalization initiatives is something we shall return to in the subsequent sections of this paper.

The promotion of digital technologies in the formalization of land rights is coined within contemporary global development terminologies of; "good land governance", "people-centered land governance", and "gender-responsive land governance", terms which are in themselves a global response to the critical scholarship around the neoliberal land grabbing that emerged in the mid-2000s.[10] According to Behr (2017), "good land governance" has become a central aspect of the global development discourse. Informed by the global development language of "good land governance" therefore, the emergence of digital technology has legitimized the mass enrollment of several pilot projects focused on the formalization of customary land in different parts of Uganda. Coined as "*Fit-For-Purpose*" land administration, these initiatives use diverse technological platforms and approaches, yet they hold a common notion that generating land data and formalization of land is central in the defense of land rights and, overcoming violation of women's land rights and land grabbing. This rather new form of land registration/datafication/formalization is largely taking shape outside of the existing land laws and policies, giving the funders and implementers unchallenged (and sometimes unregulated) power to shape the trajectory of what goes on in the ground in as far as getting people to register their land and the mass capture of personal data is concerned. What the Uganda government did through the 2013 National Land Policy and now through its 2024/25 ongoing review of the National Land Policy is to create an enabling environment for this digital transition in the land sector to happen, but a lot is defined by the institutions and organizations funding and implementing these digitization initiatives. What is displayed in the process, I argue is the full realization of the neoliberal goal of reducing the role of the state in the services and social sector. If the initial years of the SAPs uprooted the state from the once state subsidized social sectors such as education and health, I show that the proliferation of the digital initiatives in Uganda even relegates the state further from the actual control of productive resources, such as land. In this case, the state (and its agents) are used only as a medium of facilitating the expansion of capital, by carrying out activities that legitimizes the donor-driven initiatives of digital land formalization in rural areas, without necessarily being in control of it. In the ongoing circumstance, Reno's (1999) argument that neoliberalism and globalisation have reduced stateness rings a bell for the contemporary Ugandan reality as global institutions from the North have taken over the politics of land digitization, with only a minimal role of the Uganda State.

In order to interrogate the dynamics of the contemporary land digitization initiatives in Uganda, the study focused on the following research questions; 1) Who are the main drivers of land datafication/digitization and who actually owns the data? ; 2) Who is funding these initiatives, and what narratives and assumptions inform funders' decisions? 3) How have these initiatives

[10] According to Byamugisha (2013), and Palmer et al. (2009), "land governance" is about rules, processes and structures that determine and administer land rights. FAO further defines land governance as a process by which decisions are made with regards to access to and use of land, and the way in which such decisions are implemented and how conflicting interests in land are reconciled (FAO, 2007).

redefined the roles of actors in the politics of land governance? 4) What contestations are generated by these land digitization initiatives and what are their implications?

This paper presents the findings that respond to the above questions designed to study the politics of the contemporary digitization of land in in Uganda. The main study methodology was a desktop study, supported by key informant interviews and focus group discussions to identify the range of organizations, institutions, datasets, digital platforms and tactics engaged in the promotion and implementation of digital land formalization in various rural areas of Uganda. Our methods include a snowball sampling technique to derive a listing of initiatives and organizations implementing digital land formalization in Uganda and where these projects were implemented. The study was restricted to include only spatial data technologies being used in land formalization (land administration) and on the basis of exclusion, non-spatial digital data on existing various digital portals was left out due to the limitation of human participation in these digital spaces acting as repositories of land data and land information. Primary data was collected using interviews and focus group discussions to enrich and validate findings in secondary materials so as to provide deeper understanding of the contextual intricacies surrounding each of the digital land formalization initiatives going on in Uganda. The review of secondary materials, relevant portals and websites, NGO research reports, government guides, newspaper articles, conference presentations, government policies and laws were included while primary data was collected through key informant interviews with government surveyors, private surveyors, data experts, NGO workers and project beneficiaries. Interviews and focus group discussions were conducted around Kampala where most NGO leaders and government leaders are based while interviews and focus group discussions with project beneficiaries were conducted in the Teso region where one of the fit-for-purpose land registration initiatives was implemented.

With this research piece, being part of a wider research conceptualization of "Land Datafication in Africa" under the Institute of Poverty, Land and Agrarian Studies (PLAAS) at the University of the Western Cape, the data collection process was funded under the same initiative. The study deploys critical political economy analysis in understanding the politics of global land governance as displayed in the recent digitization of customary land in Uganda. The paper thus considers the ways in which the literature on land grabbing has prompted the growth of a land data industry, and land datafication – itself a form of commodification. With these insights, this paper contributes to the evolving discourse on the intricate interplay between digital strategies, customary land formalization, and the broader dynamics of land governance and structural transformation in Africa. The analysis of results to these questions are presented in the following sections of the paper.

Donor-NGO driven land digitization in Uganda: what is the role of the State?

Although this study focuses on the digital creation of spatial data, the new wave of land datafication spans beyond just spatial to non-spatial land data. While spatial data is mainly used to drive the land administration reform, non-spatial data is used mainly to monitor compliance to global principles of good land governance in the name of sustainable development. Global

institutions running online data portals have recently hyped the "role of data in land rights for sustainable development"[11]. These global data portals such as Prindex, Landex, Land Portal, Landmark, Land Matrix focus on land governance issues and mainly non-spatial types of data about perceptions of land rights (Prindex), legal frameworks and their implementation (Landex), the state of land information and how data is used, advocates for open data access and citizen data generation (Land Portal), mapping and documentation of indigenous peoples land rights (Landmark), large-scale land-based investments, keeping a global repository of land-based investments for promoting transparency and accountability in land acquisitions (Land Matrix), corruption in the land sector (Transparency International), captures information about land rights defenders where evictions are taking place (ALLIED). There are also emerging national level non-spatial data repositories targeting to improve land governance such as; the Uganda Land Observatory"[12] which Uses open-source software to collect data on land deals with a view of strengthening "land governance and improve transparency in land transactions; Advocacy and Legal Advice Center (ALACs) owned by Civil society actors in Uganda, an online platform which provides a "simple, safe way for people to report corruption" and "receive support from a trained advisor"[13].

Couched in the language of "land governance" and "sustainable development", these global land datafication initiatives argues for the creation of a "people's data" for ensuring accountability by generation of an inclusive, evidence-based response to the climate and environmental crises. The reason for the global demand for this data is argued to be due to the weak protection of certain tenure rights, attacks on environmental and human rights defenders[14] and general insecurity of land and property rights where "1 in 5 adults feel insecure about their land or property rights[15]". Portals like the Land Matrix then shows existing pressures resulting from the agricultural land rush since the 2000 where the portal recorded 33 million hectares in agricultural land deals with new pressures said to be mounting from global climate action as green energy transitions requires significant amount of land to set up[16]. Because of these, we are told to be worried for the lack of data on land as "very little of it is available and accessible as a public good" and we are then told to "work with governments to open up land data for the public"[17] because data is needed for purposes of informing documentation, mapping and monitoring; advocating and implementing open data principles and promoting, informing and enriching the global debate and practice[18]. The global data portals run by private institutions are therefore considered global (re)sources of information on land.

[11] EU, ILC, Land Portal, Prindex. Land Matrix (2023) Land Rights for Sustainable Development: The Role of data
[12] Uganda Land Observatory, 'About Uganda Land Observatory - ULO' (*About Us*, 2022) <https://ugandalandobservatory.org/>.
[13] Transparency International Secretariat, 'ADVOCACY AND LEGAL ADVICE CENTRES' (*Transparency International*, 2022) <https://www.transparency.org/en/alacs>.
[14] EU, ILC, Land Portal, Prindex. Land Matrix (2023) Land Rights for Sustainable Development: The Role of data
[15] Perceived tenure insecurity – a global dataset: Prindex.net. https://www.prindex.net/
[16] The Land Matrix https://landmatrix.org/
[17] The Land Portal https://landportal.org/book/countries
[18]The Land Portal https://landportal.org/book/countries

Under the digital land formalization initiatives in Uganda that this paper focuses on, the type of data being generated is spatial data, coined in the language of improving land administration through *fit-for-purpose* technology. In the emerging politics of the *fit-for-purpose* land registration in Uganda, the spector mimics the *politics of land reform in Africa* of the 1990s, described by Manji (2006). Under the fit-for-purpose land formalization initiative in Uganda, different intuitions, mainly international NGOs, bi-lateral donors and Tech companies from the global north have come with different land registration technologies and platforms to register and store customary land records. Institutions such as UN-Habitat/GNLT, Cadasta Foundation, GIZ, Zoa; Cordaid and The World Bank have emerged in this scene.[19]. These institutions not only provide funding for *fit-for purpose* land registration but also directly involve in actualization of interventions.

These institutions deploy related or similar digital technologies in land registration, data capture and storage in a range of tools. For example, The Ministry of Lands, Housing and Urban Development (MoLHUD), with the help of the World Bank set up the Uganda National Land Information System (UgNLIS) around 2015 which was launched in October 2024, as a government repository where all spatial land data for registered land in Uganda is stored. Although MoLHUD does not dictate on the tools and equipment to be used in the *fit-for-purpose* land registration, four tools have so far been developed and piloted in different parts of Uganda including; Systematic Land Adjudication and Certification (SLAAC), Solutions for Open Land Administration-Open Tenure (SOLA-open tenure), Social Tenure Domain Model (STDM) and Cadaster Register Inventory Saving Paper (CRISP)[20]. These tools are conceptualized under the land administration domain model (LADM), established by the lead land administration players in Uganda with the arguments that lack of well-integrated data model was a significant detractor to the ascertainment of land rights among the rural people. The establishment of these *fit-for-purpose* tools was not created by any legislation in Uganda, although the 2013 National Land Policy introduced the use of modern technology in land management, which was the basis for the creation of the National Land Information System (NLIS)[21].

LANDnet (2022) has outlined the four major fit-for-purpose tools have been piloted in Uganda to have rights under customary, mailo and freehold tenures formally documented/registered. It is stated that the tools are aligned to specific donor aims and objectives of the project under which the tools are being piloted. The tools are said to be built on the principles of transparency, inclusion, innovation and use bottom-up participatory approaches and depend on handheld single frequency GPS tablets for data collection and are backed by flexible Land administration Domain Model (LADM) under the principle of a continuum of accuracy[22].

The donor driven *fit for purpose* tools piloted in Uganda include; *First*, the *World Bank's Systematic Land Adjudication and Certification (SLAAC)* implemented through MoLHUD to

[19] Interview, senior staff surveyor, department of surveys, Min of lands Entebbe, 13th March 2024
[20] LANDnet (2022) Fit-for-Purpose Land Administration in Uganda: A Technical Review
[21] LANDnet (2022) Fit-for-Purpose Land Administration in Uganda: A Technical Review
[22] LANDnet (2022) Fit-for-Purpose Land Administration in Uganda: A Technical Review

register customary land (actually convert into freehold) with the "objective to bring the customary records to the Uganda Land Information System inherently providing exclusive data security and to the tenure, the ultimate need for the country's land administration developments" and has been piloted in districts like Oyam, Mbarara and Jinja[23]. The tool uses Real Time Kinematic mode for freehold data capturing, captures types of land use, uses 40cm spatial resolution for rural areas and 25cm for peri and urban center orthophoto as base maps for data collection, uses a coordinate reference system of ITRF 2005_UTM zone 36N, physical file with application documents of land owners showing their national identification numbers, and collects data using the Quantum Geographic Information Systems (QGIS) and operates on intranet.

Second, the Food and Agricultural Organization (FAO)'s, Solutions for Open Land Administration (SOLA) Open Tenure, a software which supports governments in the management of land tenure data, community recognized tenure rights and claims such as customary land claims. It uses tablets to digitize parcels, relies on google earth imagery as base maps for identification of visible boundaries, scans handwritten documents available in the claimants physical file and links it with the spatial file of a given owner, uses the reference system of spatial data WGS 84_UTM Zone 36N system and geographical coordinate system GRS 80_WGS84, captures all personal information used to obtain land certificates of customary ownership including name of the claimant, type of claim, land use, date claim is made, number of people with claims on a given spatial unit and the adjacent properties[24]. The tool was piloted in Kasese and Nwoya districts in 2015.

Third, and majorly, the Cadastre Registry Saving Paper (CRISP), a tool designed under GIZ's project of Responsible Land Policy in Uganda (RELAPU) with the goal of upscaling small holder farmers to improve food security and livelihoods with a focus on women and marginalized groups. Piloted under both mailo and customary land tenure to register land rights in central, eastern and northern Uganda, the tool captures the formal (bonafide and lawful occupants) and informal (squatter) interests on land. To capture and generate data on land, the tool relies on open-source software for data collection and management using local host database (PostgreSQL) and Quantum GIS (QGIS), it applies a standalone positioning technique in doing data collection using single frequency base receiver, works with predefined misclosure that must be set before data collection, allows recordation of all necessary authentic document of ownership or restrictions for example National ID, mortgage and loan agreements, captures class of family responsibility over land such as father, mother, child; allows for groups of persons to be added to the parcel indicating the rights they have over the land, captures land use, types of structures on the land, captures all spatial land units, uses 40cm resolution orthophotos base maps for identification of visible boundaries, shows the name of the field mapping clerk trained by GIZ and works with the local state land administrators to produce land certificates and Land Inventory Protocols (LIPs)[25].

[23]LANDnet (2022) Fit-for-Purpose Land Administration in Uganda: A Technical Review, p'14
[24] LANDnet (2022) Fit-for-Purpose Land Administration in Uganda: A Technical Review
[25] LANDnet (2022) Fit-for-Purpose Land Administration in Uganda: A Technical Review

The Social Tenure Domain Model (STDM) designed by The UN Habitat for Humanity counts as the fourth major fit for purpose tool piloted in Uganda, for use in urban areas and captures mainly social tenure relationships in the continuum of land rights rather than data to inform fully-fledged cadaster. The tool captures personal information of the land claimants including; names, gender, date of birth, marital status, household relations, National Identification Number and have been piloted in the districts of Mbale, Adjumani, Pader among others. The tool records multiple rights on a given parcel, uses various applications and local host database (Postgre SQL) for field data collection and the STDM QGIS plug-in for data management. It uses open street map and google maps as base maps for identification of visible boundaries. Its meta data of the spatial data is WGS 84_UTM Zone 36N coordinate system and a geographical coordinate system GRS 80_WGS 84 and used mainly in informal settlements. It also allows the recording of history on a parcel under the validity start range date as well as the validity end range data[26].

Although LANDnet's (2022) *fit for purpose* review lists only four major initiatives above, this study found that there are several other *fit for purpose* initiatives that have been operating in the country and some are yet emerging. For example, in a recent statement explaining their *fit-for-purpose* land registration efforts in Uganda, an employee of Zoa gave this explanation in an email, *"ZOA is active in the land sector in Uganda for almost 10 years now, supporting CCO registration in Acholi (Nwoya) and West Nile (Terego), and currently starting with a results-based-financing approach to CCO registration in Busoga, Elgon, Kigezi, Lango and Rwenzori, together with Cordaid"*[27]. Further still, the guideline on fit for purpose land formalization recently issued by the Ministry of lands acknowledges Cadasta as one of the "supporting partners" in this initiative[28].

In a report that was recently shared by members of the National Land Coalition (NLC) Uganda a further new player in the use of technology to formalize land rights was made, the arrival of *Common Lands.org*[29] in Uganda's land digitization space. Apart from innovating new ways to quickly enroll the beneficiaries of this initiative into market transactions (turning their land into capital), the Common Lands.org initiative gives the best demonstration of how the emergence of digital technology obliterates the role of the state from controlling what goes on in the land sector. The report to members of the Uganda National Land Coalition (an initiative of the International Land Coalition-ILC) stated that Care International, an international NGO working in Uganda invited Common Lands.org to Uganda and dictated that the pilot project be implemented in the West Nile region of Uganda under a five-year project. Under this initiative, Common Lands.org issues certificates to a minimum of 150 people whose plots are grouped together and without land disputes. Common Lands.org then issues land certificates as a social document. Because it considers its certificate as social (rather than legal), common lands.org has no relationship with the Ministry of Lands, Housing and Urban Development (the highest state institution responsible

[26] LANDnet (2022) Fit-for-Purpose Land Administration in Uganda: A Technical Review
[27] Email communication from a Sector Specialist, Land Rights based at Zoa, Netherlands during the ILC Global learning convening in Uganda, June 2024
[28] [28] Ministry of Lands, Housing and Urban Development (2023) Guidelines for integration of spatial data for certificates of customary ownership and certificates of occupancy into the Uganda National Land Information System, Department of Surveys and Mapping, Kampala
[29] https://commonlands.org/about-us

for governing issues of land in Uganda) and does not put in place any requirement for people to work with the local (state and non-state) land administration structures. It is stated that Common Lands.org, as a global technology uses technology to enable access to credit in marginalized communities. Community members use the common lands.org digital application certificates issued on their land as collateral to access financial credit. This is because, Common Lands.org believes that collateral incentivizes individuals to work together and therefore, it is the responsibility of the group to whom credit is advanced to pay back the loan. To achieve this group enrolment, Common Lands.org mainly targets savings and Credit Cooperative Organizations (SACCOs), farmer groups and groups that do self-managing and financial institutions in the project regions were beginning to accept the Common Lands certificates as authentic collateral for bank loans and was working hard to enroll many other financial institutions to give credit to the beneficiaries of this project by paying fees to Common Lands.org, in relation to its vision of issuing one (1) billion certificates by the end of 2033[30], a number way above the total population of Uganda and raising questions about how realistic the number-driven targets around land registration is. The question then is, which is way beyond the security of tenure rhetoric which has been used to promote land registration is therefore about capitalist incorporation into the global circuit of capital as testified in the vision of Common Lands.org that *"*

Although Common Lands.org is not yet charging fees to the beneficiaries whose data is captured, the company was charging fees to lenders and financial institutions who give loans to the bearers of the certificates, introducing the concept of "cloud rent" as advanced by Varoufakis (2023) into Uganda's reality of land digitization space.

All these *fit for purpose* land registration initiatives are therefore recent developments that happened within the last 10 years and most aspects of how these interventions operate are not captured in the major legal frameworks governing land in Uganda. Because of the fast speed with which the reforms around *fit for purpose* land registration has taken shape in the last decade, the Uganda's legal system has not been in a position to keep pace with the speed of technological changes. In this regard, some of the interventions driven by the *fit for purpose* approach are not captured in the existing land laws, disabling the state from controlling the affairs of what goes on in these initiatives. For example, the move towards integration of spatial datasets from Certificate of Customary Ownership (CCO) and Certificate of Occupancy (COO) land registration into the National Land Information System is not provided for in the existing legal frameworks and only a guideline was recently (in 2023) issued by the MoLHUD's Department of surveys to try and guide the inclusion of data being generated in the fit-for-purpose land registration processes into national land records[31]. Before the issuance of the guideline by MoLHUD in 2023, it was clear that the *fit*

[30] Report of a meeting between a member of the Uganda National Land Coalition (NLC) and the CEO of Common Lands.org held in Kampala on 18th March 2024 and shared with NLC members. More details available at https://commonlands.org/

[31] Ministry of Lands, Housing and Urban Development (2023) Guidelines for integration of spatial data for certificates of customary ownership and certificates of occupancy into the Uganda National Land Information System, Department of Surveys and Mapping, Kampala

for purpose initiatives in Uganda were driven by a context of donor competition and contradiction[32], ironically, even the development of the guideline was donor funded.

The technological approaches to land digitization are facilitated by the use of geospatial technologies like satellite imagery, geographical information systems (GIS), Global Positioning Systems (GPS), and unmanned aerial vehicles (UAVs), among others. Some of the data is gathered and analyzed using open-software like *Kobo Collect*, among others. These tools largely collect administrative and spatial data e.g. parties' biodata, restrictions and responsibilities on land, "unit identifiers, dimensions, area, utility corridors, boundaries, land use among other attributes."[33] These digital tools have supported the delivery of land services including adjudication, demarcation, survey and recordation.[34] Most of the digital technologies in Uganda's land sector have been piloted and/or deployed on customary land – the predominant land holding system in the country, where land rights is not documented.[35] Under the law, customary tenure is "a system of land tenure regulated by customary rules which are limited in their operation to a particular description or class of person."[36] It is characterized by several attributes including: unique application to a particular geographical area and class of people; application of local customary regulations; individual, household and communal ownership and use of land; among others. These rules are mostly undocumented and apply variedly in different contexts and regions of Uganda. However, overall, they regulate the exercise and enjoyment of the various individual, family and communal land rights in a given society. Because of its undocumented nature, customary tenure is allegedly associated with "inaccurate records", non-uniform standards and perennial conflicts.[37] As such, technology has been touted as a panacea for some of these problems by improving land adjudication, recordation and facilitating transactions on it.

While the realities of customary land ownership shows varied rules in land management and a varied logic of what is considered "evidence" of customary land rights, the *fit for purpose* digital tools used in the registration of customary land to some imposes uniformity. A survey of the concept of "evidence" of land rights among 88 customary land owners from Oyam, Lira and Otuke districts of northern Uganda with disputes registered at Land and Equity Movement in Uganda (LEMU) Lira office in 2024, revealed the varied logic of what people consider as "evidence" of the land rights and the basis upon which they claim their land rights under customary land tenure. The evidence used for claiming land rights included; minutes of meetings, local court proceedings, anthills, verbal wills, letters from the clan, existence of banana plantation, verbal and written agreements, human witnesses, clan leaders, local council leaders, a handover book from the person donating land, minutes of mediation meetings, neighbours as witnesses, clan members as witnesses, memories from previous meetings in which land was granted, records kept in general

[32] Interview, data expert at a land NGO in Kampala, 11th March 2024
[33] LANDnet Uganda, 'Fit-for-Purpose Land Administration in Uganda: A Technical Review' (2022).
[34] ibid.
[35] Charles Amone and Charles Lakwo, 'Customary Land Ownership and Underdevelopment in Northern Uganda' (2014) 2 International Journal of Social Science and Humanities Research 117.
[36] Land Act, Cap 227 1998.
[37] Josephine Lungu, 'The Use of Technology in Systematic Land Governance' (*Medici Land Governance*, 2022) <https://mlgzambia.com/the-use-of-technology-in-systematic-land-governance/>.

record books of clans, trees planted on land boundaries, memories about how a given family acquired its land, elders who are familiar with land boundaries, sketch maps drawn after conflicts are resolved, foundations of broken houses where a family once lived but shifted away from *(wi-obur)*, trees planted by a family before migration from a given land, police records, family and clan lineage, graves of relatives and ancestors and the existence of children raised on a given piece of land[38]. In the *fit for purpose* land rights documentation, there is an attempt to erase these various conceptions of "evidence" and histories of relations embedded in customary land tenure relations into simplistic paper evidence. While it is acknowledged that different technology and equipments can be used in the *fit for purpose* land registration, the standardization of the type of spatial data collected and stored excludes some of the community conceptions and imposes new conceptions which push the logic of external control over society forward and impose new meanings to what land and land boundary is.

While the ongoing land digitization appears to be bringing customary land under state control for a possible elimination as did the recognition of customary land tenure in the first place during the 1995 Constitution (Mamdani 2015), I show in this paper that the adoption of digital technology has also occasioned the eliminating the State from the affairs of society. As shown above, the digitization is taking shape in a context where the Uganda state has not coped up with enacting laws to guide and control the process of land registration in a digitized era, the fit for purpose initiatives are purely funded and implemented by donors and NGOs, and the state is not in control of the massive data being generated and stored in the digital platforms of these funders, NGOs and tech companies. The digitization of land therefore seems to have occasioned a contradictory process of centralizing the role of the state (only when necessary such as in reversing the stipulated procedure of printing Certificates of Customary Ownership (CCOs) at the sub-counties to printing them at the Ministry of lands) but eliminating this role at the same time to pave way for market creation and capitalist accumulation (as in the case of Common Lands.org) where the donor driven processes issue "social" maps and promote them to be used as collateral for bank loans, rather than the legal certificates stipulated in the land laws. Slowly by slowly, the *fit for purpose* land administration is recentralizing the already decentralized land administration as the central government through its MoLHUD takes a center stage in mediating the role of donors, project implementers, the local land administration structures in a context of already decentralized land governance (Kobusingye 2018). The mandated sub-county structure supposed to print CCO as per the 1998 Land Act is neglected with the ministry assuming that responsibility given the need for standardization and subsequent integration into the national database, the National Land Information System. . This paper therefore suggests that two levels of contradictions are emerging in the arena of digital land registration: centralisation of power to control land and land documents in the hands of private/foreign entities (as in the case of Common Lands.org) on the one hand and privatisation of a government (whether local or national government) functions on the other hand. This combination appears to worsen the security of tenure of land for rural communities. A particularly significant implication of this relates to what people receive. Those receiving 'certificates' from Common Lands.org for example do not have a title deed or a Certificate of Customary Ownership issued by the state, but they may believe that they do! The taking over of

[38] Statistical analysis of 2024 case data base, LEMU Lira office, July 2024

the function of the state, arising from the replacement of legal land documents (such as title deeds and certificates issued by the state) with social land documents (such as social GPS maps issued by private companies and NGOs) also invokes questions as to whether these private entities can guarantee to the land holders that their land documents are "authentic".

A core definition of customary land in Uganda's 1998 Land Act is it that "*customary tenure is a form of land holding where land is held and managed according to the generally acceptable norms and practices of a particular community*[39]". Meanwhile the realities of conceptions around customary land holding is that the rules of land management are locally generated and contested and the governance is vested in local (clan) leaders, the new creation of spatial data in the *fit for purpose* land registration erases these local conceptions and transforms them into external and state driven conceptions of what constitutes as important records around land relations. If customary rules governing land in various societies where land datafication are taking place are different, how does the uniformly designed digital platforms for land registration considers and takes into account the unique features of customary land rights embedded within family and lineage relations? How is the power of customary leaders usurped and handed over to state land administrators and consequently the market? How appropriate are the digital tools designed to document customary land rights? How are digital tools which are inherently internet based applied in rural locations where internet connect is poor? In the use of these tools, who is included (educated, youth, men) and who is excluded (illiterate, the elderly, women). Additionally, most of these tools are developed mainly from the global North whose conceptualization of land is individualistic in nature and there is a tendency for such Eurocentric ideologies and biases to be embedded in the digital technologies which can make them contextually inappropriate in some areas where land is customarily held. The above concerns, among others, raise questions on the efficacy of digital technologies in enhancing tenure security on customary land.

In recent years, critiques within the literature on e-governance have been mounted against mainstream digital frameworks faulted for inappropriate user experience design and have resulted in alternative frameworks such as; post-colonial design, feminist design, transition design, design ethics, design justice and sustainable design being suggested. Mainstream design frameworks are faulted for their exclusion of users and points of view that do not act as enablers of return on investment for the organizations that fund the design[40]. In most cases design processes merely look at pre-decided functions and not capabilities that provide freedom to users to decide their own functions and under such circumstances there is very little room to deeply understand and accommodate users own goals and objectives. If any, "the focus of the sessions with the users is usually to understand how their goals and objectives can be best adapted to the goals and objectives already decided by the business, even if that means the use of manipulative persuasion design

[39] Ministry of Lands, Housing and Urban Development (2023) Guidelines for integration of spatial data for certificates of customary ownership and certificates of occupancy into the Uganda National Land Information System, Department of Surveys and Mapping, Kampala, p'2; The Land Act Cap 227 (Sec 3,(1).

[40] Chavan and Prabhu (2021) A User Experience Design Toolkit for Citizen Designers, in Eilu, Baguma, Petterson and Bhutkar eds. Digital Literacy and Socio-Cultural Acceptance of ICT in Developing Countries, Switzerland, Springer.

techniques"[41]. Design approaches that ensure citizen participation are becoming more commendable as it draws on working bottom-up and raising the design awareness of all citizens so as to create "citizen designers". In this process the designer shifts from being a detached expert to being a collaborator, this means the design takes into consideration of the users and the value of co-creation will be realized. "In the past we designed for users, today we design with users, tomorrow we will have design by users"[42]. In their review of the *fit for purpose* land administration in Uganda, LANDnet Uganda stated that one of the issues on land administration under the *fit for purpose* land administration was one of standardization. It concerned a prescribed approach to the identification of parcels, documents, persons, control points, source documents and maps, archives, agreed methods for coding, set of work flows and all these standardization processes are made a requirement for both paper and digital land administration systems[43]. For the ongoing theoretical debates and the pragmatic critique emerging from Ugandan NGOs, it is clear that the *fit for purpose* designs being deployed over rural communities in the land formalization initiatives are purely top-down and does not take into account the goals and aspirations of how customary land owners would like to be represented in terms of what record is important to capture and what is not.

While the goals and aspirations of customary land owners gets submerged in the imposition of the digital land formalization standards, the narrative shaping the adoption of the fit-for-purpose land formalization is coined within the neoliberal language of "tenure security". According to the Ministry of Lands Guideline for integrating *fit for purpose* land data into the UgNLIS, "with the need to enhance the security of tenure of CCO and COO holders, it has been decided to integrate the spatial datasets of CCOs and the COOs into the Uganda National Land Information System (UgNLIS)[44]". The main process of ensuring security of tenure in this data integration is done in the sense that the CCO data is overlaid into the NLIS to show whether or not there is already an existing registered land (free hold) and thereby prevent any risk of double titling. So is the only purpose of *fit for purpose* land registration to ensure security of tenure? Certainly not. What other hidden "purposes" exist? At the height of the neoliberal land reform in Uganda through the 2013 National Land Policy, land is defined as the most basic resource in terms of the space it provides, the environmental resources it contains and the capital it represents and generates[45]". The government guideline for integration of spatial data into the UgNLIS in the ongoing fit-for-purpose went ahead to state that "for purposes of optimally unlocking the economic potential in the land resource, any land owner must enjoy security of tenure, and as such land should have the potential

[41] Chavan and Prabhu (2021) A User Experience Design Toolkit for Citizen Designers, in Eilu, Baguma, Petterson and Bhutkar (2021) eds. Digital Literacy and Socio-Cultural Acceptance of ICT in Developing Countries, Switzerland, Springer, p'13
[42] J.Rheinfrank (2002), *The Philosophy of (User) Experience*, quoted in Chavan and Prabhu (2021) A User Experience Design Toolkit for Citizen Designers, in Eilu, Baguma, Petterson and Bhutkar (2021) eds. Digital Literacy and Socio-Cultural Acceptance of ICT in Developing Countries, Switzerland, Springer, p'16
[43] LANDnet (2022) Fit-for-Purpose Land Administration in Uganda: A Technical Review
[44] Ministry of Lands, Housing and Urban Development (2023) Guidelines for integration of spatial data for certificates of customary ownership and certificates of occupancy into the Uganda National Land Information System, Department of Surveys and Mapping, Kampala, p'2; The Land Act Cap 227 (Sec 3,(1), p'v
[45] Uganda National Land Policy 2013, Government of Uganda

of generating economic benefits"[46]. In light of the technological advancement that enabled the creation of computerized land administration system therefore, the sketches for land had to be ditched to allow for integration of this data into the National system. Beyond the tenure security and the economic benefit claims (which marketizes land), I argue that the *fit for purpose* land formalization brings two new dimensions of dilemma for the registered land owners whose data has been captured and integrated into the state repository for land data: first, the introduction of state control over the population and their property in an unprecedented manner (since all personal data and relations is availed to the state) as stated by the department of surveys that "a land information system is generally understood as a management tool designed to manage all aspects of land for purposes of achieving efficient control of land[47]"; it is creating a new class categories i.e., "cloud serfs"[48] and "cloud capitalists" (to borrow ideas of Varoufakis 2023).

The question of data, what has it got to do with security of tenure?

The data attributes generated by the implementers of the *fit for purpose* land formalization initiatives go beyond just the spatial information about the size and location of land, but extends into personal data of the people occupying the land and their relations. For example, in the 2023 guideline from the MoLHUD's department of surveys, CCO implementers are required to submit data categories including; customary land identification number, cadastral county, cadastral sub-county, hectare of land, existing land use practice on the land; it also requires personal information such as; name, age, sex, marital status, nationality, national identification number; other data required includes; the implementer, data collector, date of collection, administrative sub-county, village name, supervisors like Area Land Committee, witnesses, equipment used[49].

Besides the security of tenure argument fronted for the promotion of *fit for purpose* land registration, why are global institutions from the North obsessed with accessing and controlling data in the global South? One argument fronted during this study is that global forces are after capturing data for their benefits, so that people can sell their land, for carbon credit. The goal is not land tenure security for customary land owners as claimed. When the question of who owns the data generated during the fit-for-purpose land digitization was fronted, it became clear that the data is owned by each of the companies that collect the data and it is stored in their clouds and internet servers. In most cases, the Ministry of Lands neither actually have the data nor controls it. The decentralized land administrators like the Area Land Committees and Sub-county recorders

[46] Ministry of Lands, Housing and Urban Development (2023) Guidelines for integration of spatial data for certificates of customary ownership and certificates of occupancy into the Uganda National Land Information System, Department of Surveys and Mapping, Kampala, p'2; The Land Act Cap 227 (Sec 3,(1), p'1

[47] Ministry of Lands, Housing and Urban Development (2023) Guidelines for integration of spatial data for certificates of customary ownership and certificates of occupancy into the Uganda National Land Information System, Department of Surveys and Mapping, Kampala, p'2; The Land Act Cap 227 (Sec 3,(1), p'2

[48] (the rural people of Uganda whose data has been taken and stored on the cloud servers of the northern based institutions)

[49] Ministry of Lands, Housing and Urban Development (2023) Guidelines for integration of spatial data for certificates of customary ownership and certificates of occupancy into the Uganda National Land Information System, Department of Surveys and Mapping, Kampala, p'2; The Land Act Cap 227 (Sec 3,(1), p'17-18

who participate in generating the data neither have access nor have control over it because they are mainly used to mobilize people to apply for their land to be registered, to adjudicate disputes that emerge in the process and to approve and legitimize the process[50]. That said, data experts suggest that there are risks associated to the *enmass* digital capture of spatial land and personal data, including redundant data, loss of data, misuse of personal data, targeting resources belonging to communities, use of data to the detriment of affected people whose data is taken beyond their control. Under such circumstances, further protections of personal data for participants of the land documentation and datafication are required but the actors in these initiatives were totally silent of the question of data protection. The emergence and use of digital technology in land registration is happening at a very fast speed that the land sector in Uganda (both government and local organizations) has not organized itself to think through current and future risks and therefore protect the communities[51].

Since its creation in 2015, the UgNLIS has been functioning without a specific legislation that let to its establishment, but its data collection and storage operations is supposed to be guided by the Data Protection and Privacy Act 2019, because the Act places an obligation on all data collectors (see part 3) in the collection and processing of personal data. The Act seeks to protect the privacy of the individual and of personal data by regulating the collection and processing of personal information, provide for the rights of the persons whose data is collected and the obligations of data collectors and processors and controllers. It also regulates for the use and disclosure of personal information and related matters[52]. Despite the enactment of the data protection law in 2019, it is not clear at all in what ways the data driven processes of fit-for-purpose land formalization are compliant with the requirements of the law and to what extent the state is enforcing this law on the agencies driving the digital data on land formalization. This study did not attempt to respond to this question as it is considered a possible subject for another inquiry.

Considering the NGO-donor driver datafication process in the wake of the digital land formalization processes, a government surveyor recounted what the law provides, but quickly admitted the rude reality why the law was ineffective and the state was not (yet) in control of the data generated by the NGO-donor driven processes. He argued that according to the law, the owner of the data is the recorder (a government officer) at the sub-county where CCOs are issued. "*The recorder is ideally meant to hold the data but they lack storage and the IT capacity to keep the data. Development partners drove the CCO process in the communities as the government took a more laid back role, more of creating an enabling environment for the projects to succeed. The data (spatial data and personal data) was generated from communities by these development partners as they issued CCOs and other documents such as the land inventory protocols (LIPs) and they later brought the data to the department of surveys at the Ministry of lands in external hard drives. The government/ministry of lands was not really in charge of data produced and transmitted, but the government now wants to take lead on data around CCOs being issued*

[50] Interview, data expert at a land NGO in Kampala, 11th March 2024
[51] Interview, data expert at a land NGO in Kampala, 11th March 2024
[52] LANDnet (2022) Fit-for-Purpose Land Administration in Uganda: A Technical Review

because there is new funding coming from the EU, World Bank which will allow the printing of the CCOs from the National Land Information System"[53].

In 2023, the Ministry of Lands to put in place guidelines for the implementers of the *fit for purpose* land registration to follow, making it a requirement for implementers to submit the data to the department of surveys, the mass land data capture has been going on in various locations of Uganda with different donors and NGOs capturing and storing the data as their own records for about ten years now. It is this context that the future risk of creating "cloud serfs" can be articulated, since the actual owners of the data have no data left with them in the communities nor direct access to the cloud servers of the northern donors and yet the state as well does not have control of what data has been taken out of the country. An employee of one of the fit-for-purpose implementing NGOs explained how data captured during the land registration in Amolatar district was managed, "all the tablets used for data capture in the district were taken to the office of the funder in Kampala for "data cleaning" at the end of the project", the clean gadgets may eventually be given to another implementing organization in another location. Similar data also remains on the project computer at the sub-county and the recorder has access (password) to it, the only problem will be if a new recorder is transferred to the sub-county who will not have the skills of accessing and retrieving the data.[54]. Another problem cited, limiting even the integration of data submitted to the department of surveys is that there are risks of different data sets being captured by the various fit-for-purpose land registration initiatives, yet for the CCO data to be integrated into the National Land Information System, there is need for uniformity in mapping reference points[55]. Without this uniformity therefore, the state will not capture this data and it will remain in the control of the NGO-donors implementing these initiatives, and could cease to be available when the funded programmes come to an end. The implication is that the funders will leave the community and Uganda with all the data.

Shifts brought about by the fit-for-purpose land formalization

With the rolling out of fit-for-purpose land formalization in Uganda, there have been several shifts in the land sector in Uganda. For example, a shift from sporadic to systematic land registration; there has been a shift from demand driven to project driven land registration; a shift from radical resistance to assumed acceptance of land registration by rural communities; a shift from self-financed land registration to donor funded registration; a shift from use of conventional survey methods to adoption of digital technologies; a shift from manual to digitization of land records; a shift from exclusion to inclusion of customary land records as a key part of the National Land Information System; a shift in the role of traditional NGOs driving debates on the land question in Uganda to being campaigners of awareness raising for fit-for-purpose land registration, the insertion of Information Technology (IT) and geospatial companies into the field of land registration, the displacement of professional surveyors as front liners in the field of land mapping by rural-less skilled labour.

[53] Interview, senior staff surveyor, department of surveys, Min of lands Entebbe, 13th March 2024
[54] Interview with an employee of GFA in Amolatar district, 21st October 2024.
[55] Interview, senior staff surveyor, department of surveys, Min of lands Entebbe, 13th March 2024

The fit-for-purpose approach to land administration is justified by reasons of being flexible in spatial data, inclusive to cover all tenure and all land, participatory in approach to data capture to ensure community support, affordable for government to establish and operate and for society to use, reliable in terms of information that is authoritative and up-to-date, upgradable with regard to incremental upgrading and improvement over time in response to social and legal needs and emerging economic opportunities. It operates under general principles such as general boundaries rather than fixed boundaries, aerial imageries rather than field surveys, accuracy relates to the purpose rather than technical standards and there is opportunity for updating and improvement of data. The components that make fit-for-purpose and administration possible are said to be spatial framework (continuum of accuracy), institutional framework (sustainable IT approach and continuum of services) and legal framework (making continuum of tenure possible)[56]. One of the benefits of the fit-for-purpose land administration in Uganda is seen as the shift in the role of land administrators "the fit-for-purpose approach implies that the role of land professionals will significantly change. Field work will increasingly be taken up by local field staff given the necessary short-term training, the land professionals will mainly oversee and manage the process and ensure that all aims, objectives and regulations are complied with[57]". The other benefits are related to the short-time and affordable costs of building the fit-for-purpose land administration technological systems.

Another aspect of change brought about by the *fit-for-purpose* land digitization has been a shift from radical rejection and resistance to reception of land formalization initiatives promoted by NGOs. Mamdani (2015) notes that land registration in Uganda has always been a subject of contestation even in the NGO circles, with one side promoting its implementation on the basis of improving "security of tenure" while another side was opposed to its implementation on the basis that it promotes commodification of land and therefore land alienation from the poor. This paper argues that because of the new tactics of "awareness raising" and "sensitization" activities of NGOs and funders, the fit-for-purpose land registration is initiated processes that break previous forms of resistance within society and funders are now counting thousands of digital land maps and Certificates of Customary Ownership (CCOs) to customary land owners who willingly apply to have their land formalized. For example, the Netherlands Ambassador to Uganda, in a remark made during the opening of a global learning conference in Uganda appreciated the importance of structural improvement of land governance for sustainable and inclusive economic development and noted that 70% of land globally has unclear ownership. She further stated that "over time, we have learned that effective land governance is not just a technical issue, and requires a holistic and multi-stakeholder approach. Political solutions are often a prerequisite to allow technical solutions to be implementable. Equitable land ownership is important for (a) sustainable development (b) human rights and social justice and (c) addressing impact of climate change". She mentioned the long history of the Netherlands working in the land tenure sector in Uganda. She highlighted the most recent program that will support local governments to issue 400,000 CCOs (certificates of

[56] LANDnet (2022) Fit-for-Purpose Land Administration in Uganda: A Technical Review
[57] LANDnet (2022) Fit-for-Purpose Land Administration in Uganda: A Technical Review, p'11

customary ownership) in the next 4 years[58]. In the same conference, a representative of GIZ made a presentation which quoted a government handbook for subsequent land transactions, noting that up to 82,000 parcels had already been mapped by actors implementing *fit for purpose* land registration in Uganda and as part of this, GIZ alone had mapped 21,000 parcels and issued 11,000 CCOs in several districts in Eastern and Northern Uganda[59]. See also Auma (forthcoming, 2025) for the politics around the new acceptance of customary land registration in northern Uganda.

One of the major changes has been the replacement of traditional surveyors with community trained GIS technicians, mainly educated youth from the communities. A private surveyor working with one of the NGOs implementing a fit-for-purpose land formalization initiative in Butaleja district of Eastern Uganda explained that the project does not use professionals but call for rural educated youth who can read and write English to apply for positions of mapping assistants, volunteers and/or parasurveyors. These parasurveyors are then trained by the NGO land mapping expert together with local land administration leaders. These rural youth are able to carry out the mapping exercise because mapping only boundaries does not require special skills because the mapping device (tablet or smart phone) is pre-loaded with the GPS coordinate system and the mapping assistants only pick up coordinates during mapping and the NGO professional surveyor then uses these coordinates to create the maps. The next step towards a sustainable mapping approach will be to train these mapping assistants interpret GPS data and use it to create simple maps[60]. In some cases, as is the case of UCOBAC's partnership with UNHabitat for Humanity, the local NGO carries out both the land mapping and community sensitization role[61] while in other cases as is the one for the GIZ – Responsible Land Policy (RELAPU), the community sensitization role is given to local NGOs through funding while the mapping role is considered more technical and GIS technicians (professional qualified with diploma in cartography or surveys) are recruited to perform the mapping role[62]. The replacement of professional surveyors with less qualified community members raises questions of legitimacy of the actors. Under whose authority do they operate? Who 'signs off' that the work they have done is proper since the professional bodies that regulates the work of the surveyors are eliminated? - i.e. what would stop a person from mapping an area of land and creating a document that he/she owns the land yet the land actually belongs to his/her neighbour?

[58] HE Karin Boven, Ambassador of the Netherlands to Uganda, statement made during the opening of the Learning Week on promoting successful government and civil society partnerships in the land governance sector, organized by International Land Coalition and partners, held at Speke Resort Munyonyo from 9th to 14th June 2024. Report available at www.land-in-uganda.org

59 Samuel Eriaku, presentation made on GIZ self-financing model for sustainable customary land registration, during the learning week on promoting successful government and civil society partnerships in the land governance sector, organized by International Land Coalition and partners, held at Speke Resort Munyonyo from 9th to 14th June 2024.

60 Interview with a private professional surveyor employed by Uganda Community Based services for Women and Children Affairs (UCOBAC), Kampala, 20th August 2024

[61] Interview with a private professional surveyor employed by Uganda Community Based services for Women and Children Affairs (UCOBAC), Kampala, 20th August 2024

62 Interview with Technical Advisor, GIZ- Soroti office, 20th May 2024

Since the fit-for-purpose land formalization is also defined by a shift from sporadic to systematic land registration, it requires the mobilization of "the masses" of a given community to participate in the land registration process. The awareness raising, as a method of persuading the community to accept land registration therefore thrives in this context of "systematic" registration. The persuasive aspects of the awareness campaign is effected by ensuring that there are "incentives" for participating in project activities such as community meetings. In these meetings, participants are given T'shirts, people are taken for training workshops and given food and transport refund, leaders are paid for their conflict resolution efforts during land mapping exercises. It is through the process of systematic land registration that the new technology is sold to the masses in the villages and acceptance of the project becomes almost automatic[63]. In the World Bank funded SLAAC project in Oyam district of northern Uganda, government leaders from the survey department went down to the communities and teamed up with the local government leaders at district, sub-county and parish levels to inform the community members that to register their land was an act of "civilization" and to refuse to register land meant remaining backward. The campaign went on to tell people the economic value of acquiring land titles which included the possibility of using land as collateral for bank loans, the fact that the their value of the land would increase and in some extent, people were told that having a land title was equivalent to having a national identification (ID) card which is a requirement for many economic transactions and national registration procedures (Auma 2023). The game changer in the whole process is that the funders and implementers always meet the entire cost of land registration, with the applicants only meeting the application fee of 15,000 Uganda shillings (about $4) so that after the "awareness raising" people were then left with the choice of picking application forms if they wished for their land to be registered and the project would meet all other costs from the beginning up to the end when people receive their CCOs[64]. Because the people were "willingly" picking application forms, this kind of community response to land registration became known as "demand driven" land registration.

With the land formalization approaches receiving less resistance from society, more and more funders and NGOs are rolling new projects into communities while others are winding up their projects and making arguments that the fully funded approaches are not sustainable. Because of this argument, several approaches such as the GIZ self-financing approach to land formalization is being introduced. Besides the awareness raining campaign as a key instrument in the recent success of land formalization, the project approach that funds these process seem to be the real game changer. This point becomes vivid if we compare reports from the GIZ-RELAPU land formalization project. One officer reported that for a fully funded project rolled out in Amolatar district in 2021, about 90% of people in a sub-county called Munu got their land registered through CCOs[65] while a report by another officer of GIZ about community response to self-financing approach, also rolled out in Kalaki district in 2021, it is stated that about 235 villagers (16.3%) of households in Bululu sub-county had showed willingness to register their land by applying for

[63] Interview, data expert at a land NGO in Kampala, 11th March 2024
[64] Interview with Technical Advisor, GIZ- Soroti office, 20th May 2024
[65] Interview with Technical Advisor, GIZ- Soroti office, 20th May 2024

CCOs[66]. In Katine sub-county where GIZ had registered beyond the anticipated 5,000 CCOs in about three sub-counties between 2016 and 2022 when the project ended, there is said to be a slow response to the self-financing model introduced by GIZ when funding ended. The sub-county leaders explain that the sub-county passed 50,000 (about $ 4,000) as application fees but people are not applying to register their land as they say this amount is too much[67]: it seems that such "demand driven" registration is very context specific, which raises concerns about the longevity of such a system.

While conventional NGOs such as UCOBAC are contracted by UN Habitat for Humanity to carryout both awareness campaigns and land mapping processes, other fit-for-purpose land formalization initiatives contract the local NGOs only for the role of awareness campaign (what I refer to as a political role of preventing community resistance) while the land mapping exercise is considered a more technical role given to technology enhanced companies. For example, mapping aspect of GIZ's fit-for-purpose land formalization project (using CRIPS technology) in Amolatar district was implemented by a GFA consulting Group, a German company based in Hamburg mapping aspect of the SLAAC *fit for purpose* land formalization project of the World Bank in Oyam district was implemented by a Lebanese IT company known as GIS Transport and company specializes in geographic information systems, remote sensing and satellite data application development, land information systems and cadaster[68]. Cadasta's *fit for purpose* land mapping aspect of the project in Namutumba district is carried out by Ujaama Tribe, a Ugandan IT company specialized in Information Technology, GIS, Business Design[69]. In what displays here, the conventional Ugandan NGOs were left out of the critical intervention of mass production of land records and people's data and therefore neutralizing their ability to highlight the implications of these datafication processes. The shift towards use of the hi-tech companies in the fit-for-purpose land registration is marginalizing the voices of critical NGOs and traditional leaders from questioning the operations of the implementers on the critical question about mass data production[70].

Not what it claims to be: emerging contestations against fit-for-purpose approaches to land formalization

Studies from other countries where land digitization have been carried out in recent years have pointed out several negative implications for tenure and human rights arising from such initiatives. For the case of Brazil, Indonesia, Georgia, India and Rwanda, Pfeifer et.al (2020) have highlighted implications such as; the neglect of human rights standards, the initiatives do not address pre-exiting structural problems of land concentration and inequality even though they seem to make

[66] Samuel Eriaku, presentation made on GIZ self-financing model for sustainable customary land registration, during the learning week on promoting successful government and civil society partnerships in the land governance sector, organized by International Land Coalition and partners, held at Speke Resort Munyonyo from 9th to 14th June 2024.
[67] Interview with chairman local council 3, Katine sub-county, 21st May 2024
[68] Interview with an officer at GIS Transport, Ministry of Lands, Entebbe, 23rd August 2024
[69] Interview with a consultant in Kampala, a Ugandan IT company carrying land mapping for Cadasta in Eastern Uganda, 29th September 2024.
[70] Interview, data expert at a land NGO in Kampala, 11th March 2024

short cuts, they foster market based approaches and facilitate financial transactions on land thereby privileging private forms of tenure while erasing collective forms of tenure that do not facilitate market transactions, increases the role of private companies in land governance and causes a transfer of public sector roles to the private sector and raising serious questions around accountability and sovereignty, digitization also requires significant policy changes to legitimize these processes, there is always a lack of participation by the affected populations about the digitization processes as most initiatives are top-down and reinforces pre-existing structural discrimination and inequalities and where bottom-up initiatives exist they are faced with structural barriers such as the "digital divide" which hinders opportunities for effective participation[71].

With the land digitization *fit for purpose* initiatives well rooted in various locations of rural Uganda, a number of contestations and glaring implications are also beginning to be articulated, by the affected communities and critical NGOs. Three major areas of contestations are fronted against the fit-for-purpose land digitization namely; contestations arising from legal implications, contestations over spatial data, and institutional level issues that arise from the *fit for purpose* digitization of land[72]. Regarding legal implications, LANDnet identified four major legal implications arising from the fit-for-purpose land digitization. First, the SOLA and SLAAC are said to align land recordation with established legal frameworks while CRISP and STDM focuses on capturing de facto social land rights and seek to introduce the resulting recorded tenures into the formal registration system for recognition by government. In this instance, the first two tools (SOLA and SLAAC) used in the *fit for purpose* land digitization can be considered "lawful" because it followed existing laws while the last two (CRISP and STDM) are considered to operate outside the purview of the law. Secondly, the tools are faulted for instigating land fragmentation as land registration may focus on individual rights as opposed to communal customary rights. There are also legal implications arising from the digitization of land rights because there is so far no method of regulating subsequent transactions after land documentation of customary land rights and this becomes a recipe for future conflicts on registered land[73]. The leaders of Katine sub-county where GIZ implemented the fit for purpose land formalization have already begun to project increased land conflicts in the future, arising from the fact that people who registered their land are selling land without updating the changes on the ground with records at the sub-county so that the CCOs can be sub-divided. The chairman Local council 3 stated that even after registering their land, people continue to sell their land following customary procedures and stop there, they do not inform the buyer that the said land is registered and has documents, they do not inform the sub-county that they sold off the land and as a result, "what is on the ground is different from what is on paper" and this is a recipe for numerous conflicts in the future when the children of the current sellers (those with papers) will begin the evict the children of the current buyers (without papers) since the legality of their land rights will be questionable[74]. This raises concerns about a false sense of security, as people may think they have more security than they really have, which has the

[71] Pfeifer, M., Phillp, S., Beringer L. A., Herre, R. (2020) Disruption or Déjà vu? Digitization, Land and Human Rights, FIAN INTERNATIONAL
[72] LANDnet (2022) Fit-for-Purpose Land Administration in Uganda: A Technical Review
[73] LANDnet (2022) Fit-for-Purpose Land Administration in Uganda: A Technical Review
[74] Interview with Chairman Local Council 3, Katine Sub-county, 21st May 2024

potential to significantly undermine trust and thereby erode faith in the system. Another main issue is on the privacy of data and information collected from rural populations is not deal with the question data (access, privacy, protection) in a transparency manner, this datafication process should ideally be regulated by the data protection laws in Uganda but it is not clear how the implementation of the *fit for purpose* tools complies with data protection laws of Uganda[75]". A question then emerges of how will the Ugandan state govern the protection of data belonging to its citizens but stored in the cloud servers of northern donors/implementers located outside the country? Can the state law be effective is regulation how cloud data is used for or against its citizens when in most cases the institutions in charge of this data storage are private institutions?

While the fit for purpose approaches projects ideals such as gender transformative land registration, people centered land governance, some of these ideals have not been realized by the beneficiaries of the project. Feminist scholars have long argued that individual land registration (in the name of the women) is one of the key solutions for overcoming gender discrimination in as far and increasing women's access and control of land is concerned. Such arguments informed the campaigns with the Uganda women's movement since the 1998 Land Act promulgation when women argued for co-ownership in the famous "co-ownership debate"[76]. This for land registration has continued to shape several interventions that target improving women's land rights, including the fit for purpose land formalization. During this study, assumption that registering land in the name of a woman improves their land rights did not come true for some women. Two women who benefited from the GIZ fit for purpose land formalization had contrary stories. One widow from Asuret sub-county explained after she received her CCO, three aunties of her late husband (back by their nephews) returned home to take away her land claiming that was their father's land and they wanted to sell it. Even though she had the certificate (CCO), these women took the land and sold it and she only remained with one garden which she feared another family member may take away any time. Another widow from Katine sub-county narrated that after she applied for her CCO using her name and the names of her children, the CCO came back with another names (the name of her brothers and father in-law) and when she followed up, she found out that the mapping team was bribed after her land was mapped and the names on the maps was changed. She launched a complaint at the sub-county and was in the process of getting her name and those of her children back on the CCO[77]. In another location in Namutumba and Butalejja districts, an NGO officer reported that many times men contest the idea of including women's names on the certificate but because they always insist on gender sensitive land registration they manage to register as many women together with their husbands. Despite this achievement, the man may not really believe

[75] LANDnet (2022) Fit-for-Purpose Land Administration in Uganda: A Technical Review, p'26

[76] Aili Mari Tripp (2014) "*Women's Movements, Customary Law, and Land Rights in Africa: The Case of Uganda*". African Studies Quarterly. Vol. 7, Issue 4; Miria R.K. Matembe (2002) Gender, Politics and Constitution making in Uganda. Fountain Publishers. Kampala; Sylvia Tamale (2002) "*The Gender and Globalization in Contemporary Uganda*" in, Transformations in Uganda. Nakanyike B. Musisi and Cole P. Dodge (eds). Makerere Institute of Social Research and Cuny Center. Kampala and Washington DC; Ambreena Manji (2006), The Politics of Land Reform in Africa: From Communal Tenure to Free Markets. Zed Books. New York & London

[77] Focus group discussion with widows in Soroti, 2nd September 2024, Eneku village

that the wife has equal rights with him and when he wants to sell land, he can coerce her to sign consent for the sale and most people "yield" to this as they would rather save their marriage than the land[78]. These stories are a testimony that land digitzation is not a magic bullet to the realization of equality and equity in as far as it is not capable of dismantling pre-existing forms of discrimination that exist in the community.

Contestations have also emerged over spatial data being generated by the fit-for-purpose land formalization initiatives. According to LANDnet, "there are challenging discussions with local stakeholders regarding the nature of technologies in relationship to data storage, sharing and publication. For example, cloud technology, used by many of the initiatives is problematic to explain to land owners"[79]. Secondly, the projects do not have a common objective hence different classifications or standardization of data emerge which would create conflict at the point of entry into the NLIS and the implication for this is that not data from all tools would be entered/captured[80]. A question that immediately arises is what happens to the data whose integration into the UgNLIS is rejected on grounds of lacking standardized data sets? We know for sure that those that get integrated have implications for bringing the land of the registered owners under the state control and state land governance but those whose data is not captured could be faced worse risks associated with loss of data and or misuse if the data landed in "wrong hands". A huge discussion stated to still be required on spatial precision for data from all the tools especially on ground accuracy versus image accuracy. The Carta method and procedure of fit for purpose has mainly been applied where the orthophotos are acquired first, then used to map individual parcels and after scanned and digitized into cadaster. This procedure can deliver a positional accuracy of around 2m for an image resolution of 40cm, how about the ground control accuracy?[81] The tools clearly possess syntactic homogeneity. This is identified by the similarity in the software and hardware platforms, database management systems (local host: Postgre SQL) and the representation of geospatial objects, method of data acquisition using mobile mapping devises. Under this circumstance, questions around the different conceptions of land rights that do not fit into the homogeneity assumed by the fit-for-purpose tools may be erased during the process of digital land formalization. Some data is also counted as ambiguous since some tools are unable to embed the existing cadastral sheet to identify already mapped areas and those that are not. Interoperability issues in data management exists in the tools because there are various unique parcel identifiers generated for parcels by various tools. The tools also apply different image backgrounds (base maps) which affect the quality and accuracy of cadastral development. The attributes defined through data drastically change with the purpose of and the organizations involved with data collection and their potential for multiple uses for different purposes is unchallenged. As such, integration of different data sets brings new insight which can be used for a different purpose as long as there are known common attributes to the cadaster from every tool, the potential for deploying the data to different purposes point to real potential risks for the rural

[78] Interview with a staff of UCOBAC for projects implemented in partnership with Cadasta, 23 Spetember 2024, Kampala
[79] LANDnet (2022) Fit-for-Purpose Land Administration in Uganda: A Technical Review, p'27
[80] LANDnet (2022) Fit-for-Purpose Land Administration in Uganda: A Technical Review
[81] LANDnet (2022) Fit-for-Purpose Land Administration in Uganda: A Technical Review, p'27

populations whose data is usually extracted through persuasion. There are minimal spatial reasonings in the different survey techniques embedded in the mobile mapping devises (except CRISP and SLAAC). There is no geodectic control referencing applied on the orthopho rectified photographs. Neither do the tools visualize until a good satellite fix nor post field processing of data is performed to adjust misclosure and to obtain increased spatial accuracy with different GPS. To obtain sub-meter accuracy the devises need to be used in conjunction with GPS base station to benefit from differential GPS processing. There is no cadastral data continuity for customary land tenure with other land tenures, this pauses the risk of inducing inconsistency in the data mapped and cause other risks such as double titling[82].

Institutionally, several gaps have been pointed out. It has emerged that most fit-for-purpose projects seek to promote fast land digitization and documentation of land rights, thereby putting emphasis on the numbers of maps produced and certificates issued (the politics of numbers) while undermining the process of ascertaining rights *and claims*[83]. Under this circumstance, this form of land formalization ends up advancing land administration (recordation of rights) while silencing questions around justice (who is recording the rights). In the rush for numbers, it is possible to overlook the unobvious details and open up room for corruption. Most of the fit-for-purpose land formalization projects driven by donors and NGOs are always time bound and are "result oriented" and some are based on bizarre models around "results", such is the new Zoa and Cordaid "results-based" land registration in which the government leaders are expected to persuade their communities to apply for land registration and the project would come to refund their costs based on results achieved. A surveyor from Kizegi faced with this scenario said in a workshop that for him to make money, he will simply go to a village and rush the villages into the process to get their land registered because if he has to follow the entire due process of land registration he may never make money under the results-based framework[84]. There is a serious contradiction in the stated goals of fit-for-purpose projects that claim to protect the land rights of vulnerable groups and their data on the one hand, and the vision of publishing the data to third parties, including potential large-scale investors[85]. While these projects use the claim of protecting vulnerable populations to persuade land owners to submit their personal data in the land digitization process, the risk of exposure of this data outweighs the claimed protection. This where the actual politics of data is, as it is seen by arguments made by global database portals such as the Land Portal's argument about the importance of "open data"[86], without interrogating the question of to whose advantage is this open data?

Lastly, the institutions driving the digital land formalization in Uganda have no evidence of synergies as the *fit for purpose* tool implementers act in competition of each other. They only maintaining a close engagement with the government Ministry of Lands, Housing and Urban

[82] LANDnet (2022) Fit-for-Purpose Land Administration in Uganda: A Technical Review
[83] LANDnet (2022) Fit-for-Purpose Land Administration in Uganda: A Technical Review
[84] A government surveyor from Kigezi region, during a dialogue on sustainable land registration organized by UCOBAC, hotel Africana, 6th August 2024
[85] LANDnet (2022) Fit-for-Purpose Land Administration in Uganda: A Technical Review
[86] Land Portal – a call for open data

Development and Area Land Committees for mainly validation of their projects but not for maintaining chronological authenticity of the land registration processes[87]. Under this circumstance of completion among the implementers, it is important to ask questions around what gets shielded in the fit-for-purpose land formalization process and in a process where the role of the state is relegated to merely that of mediating the process (without being in control), it can be argued that digitization of land rights in Uganda has succeeded in eliminating the State from the politics of controlling land and productive resources in a manner far greater than anticipated by the initial stages of the SAPs about thirty years ago. The state has not only been eliminated from meeting the costs of land administration, it has is also being eliminated from the scene of power, as the authoritative institution which guarantees (land) rights to its citizens through the certificates of titles. While the neoliberal movement for land formalization (the De Soto school) approached land reform from the perspective of elevating land from being a social factor to a legal factor (through formalization of land laws and issuance of certificates by the state), the digital era of land formalization has obliterated this legal requirement and state role by making the social (lose maps issued by IT companies) equal to the legal (land certificates issued by the state) as both can now be used as collateral for loans from financial institutions.

Conclusion

The paper has shown that the era of fit for purpose land digitization in Uganda emerged in the last ten years as a donor driven initiative. Several institutions from the global North have designed fit for purpose digital tools to register mainly customary land. These land digitization initiatives have shaped many changes within the land sector in Uganda, including making land registration more acceptable among the rural communities. While some fit for purpose initiatives go a long way to issue the legal documents of land registration stated in state laws (such as Certificates of Customary Ownership –CCOs), others begin and end with the issuance of social maps for land owners to use the maps to access financial credit. In this emerging use of technology in land registration, the role of the state is therefore minimal. The paper has therefore argued that that digitization of land rights in Uganda has succeeded in eliminating the State from the politics of controlling land and productive resources in a manner far greater than anticipated by the initial stages of the SAPs about thirty years ago. The state has not only been eliminated from meeting the costs of land administration, it has is also being eliminated from the scene of power, as the authoritative institution which guarantees (land) rights to its citizens through the certificates of titles. While the neoliberal movement for land formalization (the De Soto school) approached land reform from the perspective of elevating land from being a social factor to a legal factor (through formalization of land laws and issuance of certificates by the state), the digital era of land formalization has obliterated this legal requirement and state role by making the social (lose maps issued by IT companies) equal to the legal (land certificates issued by the state) as both can now be used as collateral for loans from financial institutions. While the land digitization initiatives were justified as promoting the security of tenure for the poor, the paper has shown that the main goal is to bring the land of the poor into the market (initiate new levels of commodification) and has not been able to completely root out pre-existing forms of inequality that discriminates the

[87] LANDnet (2022) Fit-for-Purpose Land Administration in Uganda: A Technical Review

marginalized groups such as women. The paper has also shown that the fit-for-purpose land digitization, beyond the central argument around it being persuasively circulated (tenure security for economic benefits), is disarming both local communities (customary authorities) and the state of the power to control land and what happens on it, in a one-size-fits-all framework of re-ordering society as these initiatives seek to flatten the complexity of the customary sphere on the surface of a paper for purposes of readable and cloud-storable datasets. Above all, the fit-for-purpose land digitization is driving the neoliberal project home in ways that SAPs could never have imagined: the rolling-back of the state from having a say on what happens in an important aspect of society: land!, and these processes overrides de Soto & co's earlier critique of social tenure, now flattening the social/legal distinction such that the social also becomes 'legal', though for economic purposes (outside state legislation).

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